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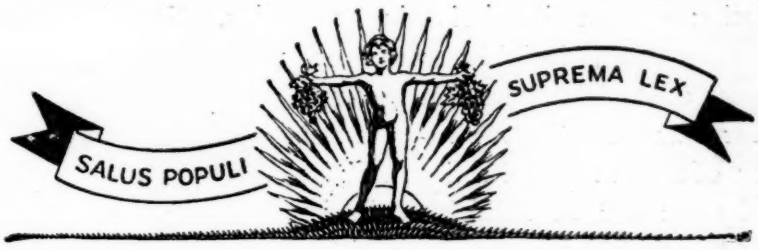

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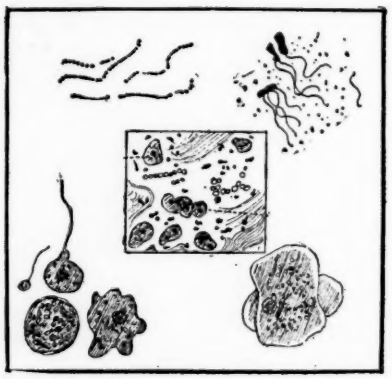

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Observations
ON
THE TREATMENT OF FRACTURES INVOLVING THE ANKLE-JOINT.*

BY
ROBERT OLLERENSHAW, M.D., F.R.C.S.ENG.,
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SINCE the days of Pott and Dupuytren fractures involving the ankle-joint have received much consideration, though not too much, in view of the disabilities which may follow in their train. Apart from the classical fractures, as usually described, the great importance of the anterior and posterior marginal fractures of the tibia was emphasized by Cotton in 1915,[1] and more recently by Ashurst.[2] It should always be remembered, however, that Astley Cooper described the posterior marginal fracture in 1822.

TYPES OF ANKLE FRACTURE.

Three years ago the British Orthopaedic Association, at its meeting in Manchester, discussed ankle fractures at some length, and I fear that it is not possible for anyone to break much new ground to-day. In considering my contribution to this discussion it seemed to me that an outline of the treatment adopted and the results obtained in a series of my own cases would be of most use. Beyond this, I propose to review a number of isolated cases which have offered more than the usual difficulties in their treatment. The incidence of the various types of fractures at the ankle is shown by the following summary of 100 cases radiographed at Salford Royal Hospital between December, 1927, and November, 1928.

Summary of 100 Consecutive Cases (Radiographic Findings) at Salford Royal Hospital, December 12th, 1927, to November 30th, 1928.

External malleolus	44
Internal malleolus	14
Fibula and internal malleolus and tibial epiphysis...	15
Both malleoli	12
Tibia and external malleolus	2
Posterior margin fractures (with malleoli)	7
Anterior margin fractures (alone 1; with external malleolus 1)	2
Astragalus with malleolus (internal 1, external 2)	3
Cuboid with malleolus (external)	1
Total	100

You will notice the large percentage of the simpler type of isolated fracture of the external malleolus. In this connexion I would like to refer for a moment to a point in the mechanism of production of fractures of the ankle. Although, as each one of us can testify, the most usual direction for the foot to turn in an ankle "twist" is towards a varus, or inverted, position, we find that not more than 3 or 4 per cent. of fractures occur which can be described as having been brought about by a forced inversion. What is the reason? Why are 90 per cent. or more of our ankle fractures due to an abduction, or valgus, twist? I believe that many a man avoids a serious fracture because, when his ankle turns into a sudden inversion, he follows it with his body, as the wrestler is taught to do, and so takes the strain. He gives way with the force, and the strain is distributed. In the reverse position it is not possible to give way similarly, and the full straining force falls on the ankle mortise.

The proportion of external malleolus fractures in this list is very close to that shown by an earlier series of 100 fractures, collected prior to the end of 1925 in order to allow us to estimate the ultimate results. As many of you know, it is a matter of some difficulty to trace end-results in hospital cases. The poorer classes are apt to change their residences frequently and so become lost; others are too careless or too illiterate to reply to the answers on the questionary with accuracy. The registrar's office sent out 100 circulars to the consecutive cases prior to December 31st, 1925, and about 65 replies were received. Further cases, continuing the series, were then approached, and, after writing to about 150 patients, complete replies from 100 were obtained, and investigated. The following table embodies, therefore, not strictly a consecutive 100 fractures, but 100 consecutive replies. The proportions, however, fall closely into line with most other series, and I give them as representing our results.

End-results in 100 Consecutive Cases of Ankle Fracture prior to the End of 1925.

	Cases.
External malleolus	42
Returned to former work	39
Average time off work eight weeks.	
Internal malleolus	8
Returned to former work	8
Average time off work eleven weeks.	
Both malleoli, fibula and internal malleolus	35
Returned to former work	30
Average time off work nineteen weeks.	
Marginal fractures	12
Returned to former work	9
Average time off work twenty-six weeks.	
Fibula with dislocation astragalus	1
Returned to former work	1
Away from work twenty-three weeks.	
Fibula, internal malleolus, and astragalus	2
Returned to former work	2
Away from work seventeen and eighteen weeks.	
Total	100

Out of 100 cases, all varieties, there returned to original work 89 per cent. Average time off work fourteen weeks.

In our discussion in 1925, to which I have already referred, one of the speakers reported end-results and provided a series of 60 cases. These were further subdivided into Pott's fractures 20, external malleolus 14, both malleoli 8, various others 18. The first group included all cases which had a fracture of the fibula near the lower end, with displacement of the foot outwards, and some definite sign of injury to the inner ankle. The speaker found that out of his 14 cases of external malleolus fracture 14 had returned to work. A computation of 100 per cent. returns to work in this type of fracture was therefore made. Nothing approaching this recovery rate had ever been hoped for, and the speaker's conclusion was, of course, fallacious. There is no greater error than to calculate percentages on fewer than 100 cases. No one could say what would be the end of the other 86 cases still needed to complete the 100. In series of fewer than 100 only the actual figures can be accepted.

TREATMENT OF FRACTURE AT THE ANKLE.

On arriving at hospital the limb should be placed on a temporary splint for transport to the radiological department. At least two views of the fracture must be taken, lateral and antero-posterior, and the result carefully scrutinized for the less obvious displacements. The gross fractures and dislocations are easily seen, but the lesser degrees of departure from the normal must not be overlooked. With this in mind, I would like to show the radiograms of a fracture which I was asked to see recently. The patient had stumbled and twisted the foot, at the same time plantar-flexing the ankle. The practitioner in charge sent the patient for radiological examination, and with the pictures came the report: "Fracture of external malleolus. There is no displacement."

On the strength of this report the foot was not subjected to any manipulation, but was left to rest on a pillow, and massage was commenced. The ankle became more painful, and refused to allow any movement at all in the direction of dorsiflexion. I was asked to see it, and found the foot plantar-flexed, with some prominence of the

* Made in opening a discussion at the Manchester Surgical Society, February 5th, 1929.

astragalus in front. The radiogram showed quite a definite displacement forwards of the astragalus (Fig. 1). There is no doubt that had the ankle been left as it

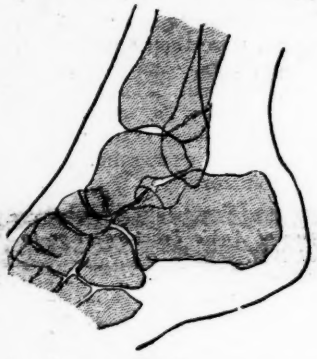


FIG. 1.

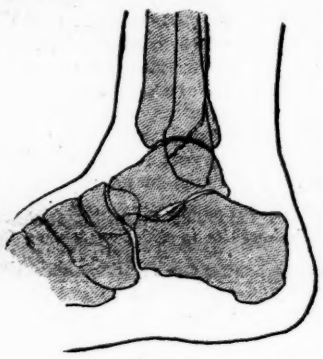


FIG. 2.

FIG. 1.—Abduction fracture of external malleolus; subluxation forwards of foot at ankle-joint.

FIG. 2.—Same case as Fig. 1; subluxation reduced.

was there would have been a very tedious recovery and probably some permanent loss of ankle movement. Under gas anaesthesia I dorsiflexed the foot, with the result shown in Fig. 2. At the end of forty-eight hours the patient himself was able to perform a reasonable degree of dorsiflexion. I would therefore ask radiologists to be especially careful in their reading of the radiograms of injuries before reporting "no displacement," and particularly so if the patient is going home under the care of his general practitioner, who may be relying very largely on the radiologist's report for guidance in treatment.

Reduction of Displacement.

When displacements are revealed by the radiograms, those usually to be overcome are: (1) eversion of the foot; (2) backward displacement of the foot; (3) some degree of equinus; (4) separation of the tibia and fibula. As good an anatomical reduction as possible must be aimed at. It is true that good functional results are seen in which the anatomical result is imperfect, but, on the other hand, there are extremely few poor functional results where a correct anatomical reduction has been obtained. It does occasionally happen that, despite the best of treatment and the most careful reduction, the ankle remains painful. The reason is the development of a traumatic osteo-arthritis. In such a case further treatment, to which I shall refer later, will probably be required.

The displacement having been determined, a general anaesthetic is given and the calf muscles are fully relaxed by flexing the knee. The heel is grasped firmly and drawn forwards whilst the other hand fixes the lower leg. The backward displacement is completely overcome, and the ankle is then dorsiflexed with the foot inverted to approximate the astragalus and internal malleolus (Figs. 3 to 8).

Methods of Fixation.

Our most useful method of fixation is undoubtedly a plaster-of-Paris cast. In the simpler injuries, such as those of the external malleolus only, with no tendency to redisplacement, a plaster strip, as advocated by Kellogg Speed, is sufficient, alone or reinforced with a bandage circularly applied. The ambulatory plaster splint described by Delbet in 1916, consisting of two laterally placed plaster splints fixed by transverse strips to the sides of the leg at the malleoli and below the knee, is easily applied, and is much used in some hospitals. The splint was originally intended for fractures of the leg bones. The apparatus allows movement of both ankle- and knee-joints, and after a week or ten days the patients are encouraged to walk in the plaster splint. Delbet also advised its employment in ankle injuries, and reported 53 good results in 55 cases. My own experience of Delbet's splint is small but increasing, and I am sure that it is a most useful appliance. I have observed that not infrequently more than one plaster is required, and Delbet himself found that of 123 cases in which the splint had been used, 68 cases needed a second cast, 28 needed a third cast, 3 needed even a fourth cast, and only 20 cases got through on one splint.

The plaster splint which I have chiefly used extends from the toes to below the knee. It is, of course, completely unnecessary to fix the knee-joint in a fracture so low down as an ankle fracture. The cast is split laterally along both sides, so as to permit constant inspection and early massage. All the fractures of the external malleolus alone, and others which show no tendency to displacement, are given massage almost at once and are encouraged to commence active ankle movement after two or three days. The fractures which have shown a tendency to redisplacement are retained in the position of reduction for a longer period, varying with the individual case, but always a minimal one. In some few cases of severe marginal fracture with backward displacement of the foot there is difficulty in maintaining even the

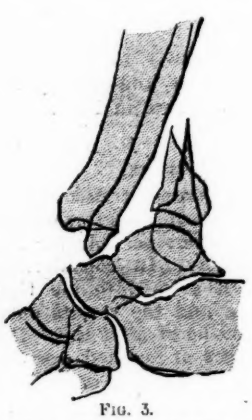


FIG. 3.

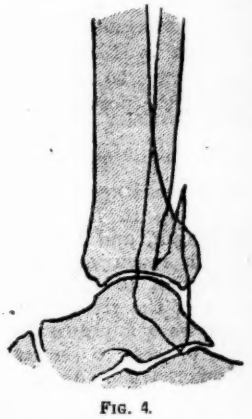
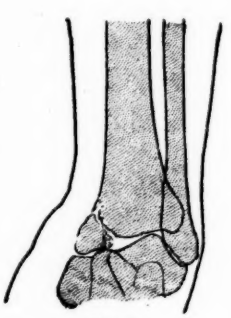


FIG. 4.

FIG. 3.—Posterior marginal fracture of tibia; fracture of external malleolus; backward displacement of foot.

FIG. 4.—Same case as Fig. 3; displacement reduced.



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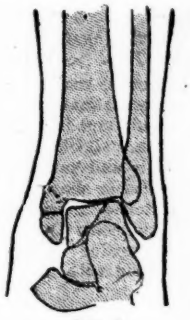


FIG. 6.

FIG. 5.—Fracture of internal malleolus and astragalus.

FIG. 6.—Same case reduced.

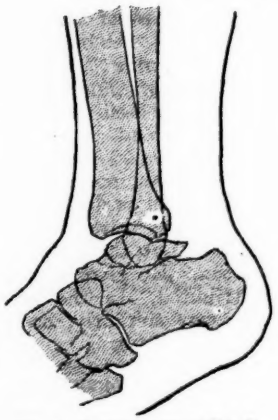


FIG. 7.—Lateral view of Fig. 5.

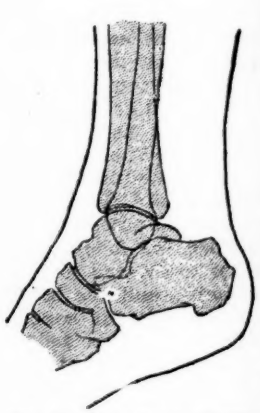


FIG. 8.—Same after reduction.

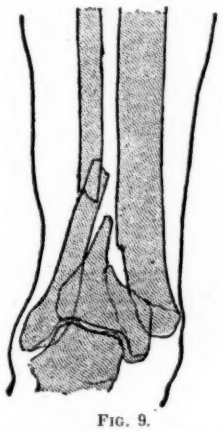
smallest degree of dorsiflexion after reduction. The tendo Achillis becomes tightened and the obliquity of the line of fracture allows the tibia to slip forwards again. In these circumstances a tenotomy of the tendo Achillis is an

advantage, and I do not hesitate to perform it. In cases of severe comminution at the ankle, sometimes also further complicated by a compound wound, Steinmann's pin and direct traction on a Thomas knee splint are very valuable. After union has occurred all our ankle fractures, except those in children or a few of the more simple fractures in adults, are fitted with a wedged boot and an outside brace to prevent any tendency to valgus when weight-bearing starts.

The question as to the form of splint, however, is of small importance compared with the ability of the individual to use his appliances properly. For anyone to say that this or that splint is the only proper one to use is a mere conceit. Each one should learn to use an apparatus with which he can produce an efficient result, and strive to make his technique with his apparatus as perfect as possible.

Operative Measures.

Operative measures, in recent cases, should be adopted only if the displacement cannot be reduced satisfactorily, or if it cannot be maintained by the usual routine methods. Many have pointed out, and with good reason, the danger of using screws, plates, or other foreign bodies in the presence of a wound, but in several cases of severe displacement, with the tibia fragment projecting through the skin over the internal malleolus, I have fixed the fibula with a plate and screws, merely as a temporary measure.



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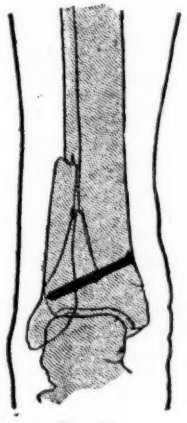

FIG. 10.

FIG. 9.—Very oblique fracture of tibia, almost compound.
FIG. 10.—Fixation by pin.

The tibial wound is cleaned or excised and the fibular wound kept completely shut off. After a short time the plate is removed, usually in two to three weeks. On other occasions, in similar fractures which have stopped short of becoming compound, I have used a screw running from side to side across the lower end of the tibia. (Figs. 9 and 10.)

With severe dislocation of the astragalus, and especially if it should be rotated on a vertical axis, open operation will almost certainly be required. In one of my cases there was a rotation of 90 degrees, the astragalus lying transversely across the fractured mortise. On exposure it was found that all its ligaments, save a few shreds, were torn across. The bone was replaced in position, and although it had no blood supply, and must for a period have survived by means of the synovial fluid, lymph, and blood serum surrounding it, there was a very complete recovery and a range of movement hardly limited at all.

OLD-STANDING CASES OF INCOMPLETE REDUCTION.

This is a group of cases where considerable disability has resulted from an incomplete reduction, usually a failure to correct valgus or to reduce a backward dislocation of the foot. Almost every case in this group requires operative treatment. Every one has to be considered individually, and it is impossible to generalize. I know of no cases requiring greater judgement or more resource; they are among the most difficult cases in the surgery of the extremities. The operative measures decided upon must be most thoughtfully conceived and carefully carried out in every detail, and I would not advise any surgeon who is not familiar with this class of work to experiment with it. I have illustrations of four such cases.

The first case is that of a young man of 25 years, who had a bad eversion fracture ten years before I was asked to see him.

FIG. 11.

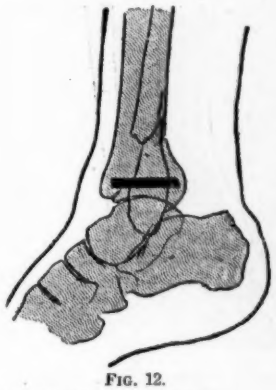

FIG. 12.

FIG. 11.—Old posterior marginal fracture, unreduced.
FIG. 12.—The same, reduced and fixed by ivory pin.

There was a much-everted foot and considerable pain. I performed a cuneiform osteotomy of the tibia and a linear of the fibula. The foot was forced over into varus. The tibia united, but a year later the fibula had not united, and was giving pain. I placed an inlay bone graft in it, and since it has united the foot has become strong, so that he has now been back at heavy labouring work for two years. His range of ankle flexion and extension is from 75 to 120 degrees.

The next case was that of a middle-aged woman who suffered from an unreduced posterior marginal fracture, which occurred two years before. Walking was impossible. The fracture was reconstructed, and the displacement reduced. An ivory pin was driven from back to front of the tibia, and the use of the ankle, whilst not normal, is greatly improved, and walking has become comfortable. (Figs. 11 and 12.)

It happens in some instances that an ankle is so painful that weight-bearing is impossible, and with or without operative treatment, reconstructive or otherwise, the patient gets no relief. I do not hesitate, in such a case, to recommend an arthrodesis of the ankle-joint. There is no doubt that a well-arthrodesed ankle is infinitely superior to one in which a moderate result has been obtained by means of a reconstruction operation.

The last case to which I wish to refer is that of a young man who had suffered in childhood from a separation of the lower tibial

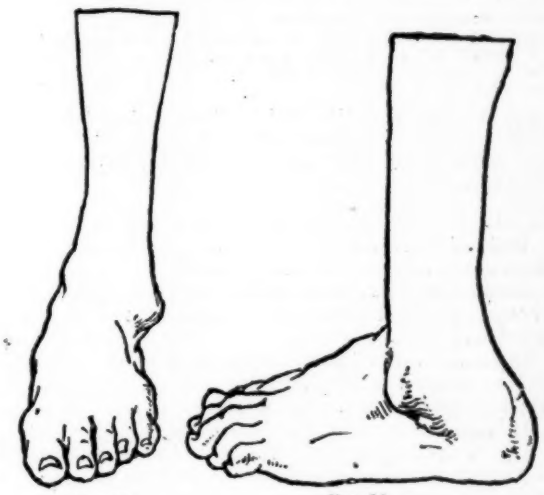

FIG. 13. FIG. 14.

Result of old separation of tibial epiphysis.

epiphysis, and in whose ankle, as growth had been interfered with, there resulted a gross deformity, which had become so bad that it was with much difficulty that he hobbled along. The appearance was as shown in the cast. (Figs. 13 and 14.) Radiograms showed a varus deformity, the fibula being curved to fit round the varus and the ankle-joint deflected more than half a right angle.

(Fig. 15.) A wedge was removed from the fibula; the tibia was divided transversely and opened out, and the gap filled up as far as possible by the piece of fibula and by shavings from the side of the tibia. Union is good, and a useful foot has been obtained. The appearance and function are now excellent. (Figs. 16 and 17.)

FIG. 15.—Pre-operative radiogram.

FIG. 16.—After osteotomies and graft.

FIG. 17.—Present appearance.

In conclusion, I would emphasize that function is the ultimate test of treatment, and I know of no better evidence of restoration of function than a return of the individual to his pre-accident work. I stress "pre-accident" because in some estimates of end-results a return to "work" has been accepted. The 1908 article of Clinton Dent, which has been so often quoted, stated: "I can hardly recall a case of Pott's or Dupuytren's fracture where recovery has been good enough to permit a man to return to police work. Among the Metropolitan Police 30 per cent. of all ankle injuries failed to recover for work."

This was a very serious state of affairs, and I hope that I have shown that some progress has been made since that time. Many causes have brought about this improvement, but none, I think, so much as the treatment of the fractures by one department. If you will permit me, I would like to quote the substance of two paragraphs in an article which I wrote for the *British Medical Journal* in 1921. The article was headed "The hospital treatment of fractures."[3]

In order to ensure the most perfect functional result which is possible it is desirable that the same surgeon should supervise the case from start to finish. He should be entirely responsible for the case whilst in the wards; he should supervise its manipulation and splinting, its early massage and, on discharge, its progress through the out-patient and physio-therapeutic departments. In hospitals which have no special department for orthopaedics a member, or members, of the surgical staff should be selected to take charge of the fractures. The number of beds which should be allotted to them for this purpose will, in an industrial area, be about 10 per cent. of the total surgical beds of the hospital.

This arrangement, by which the continual supervision is under one control, has been responsible more than any other single factor for the improvement which may have been obtained in our fracture results.

CONCLUSIONS.

1. Reduction of all displacements should be carried out as thoroughly and as early as possible.
2. A suitable splint which will permit constant inspection, early massage, and active movements at the earliest time should be applied.
3. Open operation in recent cases should be reserved for those in which the displacement cannot be satisfactorily reduced or maintained.
4. In old cases of mal-union operation is indicated.
5. In compiling statistics of end-results percentages should not be calculated on less than 100 cases, and "return to work" should mean the pre-accident work.
6. In the present series 89 per cent. of ankle fractures, of all types, returned to pre-accident work.
7. A fracture case, from the time of its arrival at hospital to the time of its discharge to work, should be under the supervision of one surgeon.

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THE TREATMENT OF ACUTE DIVERTICULITIS.*

BY

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DIVERTICULITIS, like appendicitis, is, as regards our knowledge of it, a comparatively new disease, and is still considered by many doctors a very rare condition. It was not known to the last generation of surgeons, and cases of the condition were described as "pericolitis sinistra," iliac abscess, etc., and the underlying cause of such states remained unrecognizable until recently. It is now a fairly well-recognized condition, although it has hardly found its way yet into the ordinary medical textbooks of the time. Nevertheless, it is by no means an uncommon condition, and is accountable for quite a considerable number of deaths and a still larger number of chronic invalids each year.

SYMPTOMS.

The symptoms are fairly characteristic and, if recognized, are not easily mistaken for anything else. The patient is practically always over 45 years of age, and usually rather stout; for some unexplained reason the condition appears to be quite uncommon in thin persons. The main symptoms are pain in the lower part of the abdomen, tenderness in the left iliac fossa, or just above the pubes, and raised temperature, often accompanied by shivering and mild rigors. The pain is not very acute as a rule, but is distressing, and prevents the patient from moving about freely. The tenderness, if looked for, is very definite and quite characteristic of the condition. Any pressure in the lower left side of the abdomen causes the patient to flinch, and as a rule the area of acute tenderness is very well localized to a certain spot. The temperature is seldom high; usually it ranges from 100° to 101° F. rather than higher. Quite high temperatures are sometimes seen, but are exceptional, except at the onset of an acute perforation, and in this respect it differs from appendicitis, where high temperatures are the rule. Also vomiting, though occasionally a symptom, is a rare one, whereas it is a common symptom at the onset of appendicitis.

Not infrequently a definite resistance or tumour may be felt deep in the pelvis on the left side, and it may be possible to feel this bimanually, either by the rectum or vagina. It need hardly be pointed out that very gentle handling of such a tumour is advisable, or serious consequences may result. Such a swelling can, as a rule, be easily distinguished from a carcinoma of the colon by the fact that it is very definitely tender and that there are obvious symptoms of inflammation present.

The bowels may, or may not, be constipated; on the other hand, there may be a mild diarrhoea from irritation of the colon. In some cases frequency of micturition is a well-marked feature of the case, and when this is present it almost invariably means that the bladder is adherent to the diseased colon and that a perforation from the colon into that organ is threatened. Just as in the case of appendicitis, a dose of castor oil will often precipitate acute symptoms and should on no account be administered.

These symptoms apply, of course, in the main to cases of diverticulitis of the pelvic colon, by far the commonest site, and are considerably modified when the affected portion of the colon is elsewhere. The diagnosis is often extremely difficult when either the ascending or transverse colon is involved, as the symptoms then imitate several other conditions, such as appendicitis, perforated duodenal or gastric ulcer, and cholecystitis.

The acute symptoms may arise from several different causes. Most commonly one or, possibly, two diverticula have become acutely inflamed and caused a small local abscess in the bowel wall, generally just beneath the peritoneum. The inflamed area has become adherent to other structures, such as the bladder, the small intestine, the uterus, or a tube, or sometimes to the abdominal wall. Sometimes a direct perforation into the abdominal cavity is the first symptom, and in such cases a general peritonitis will occur, the exact cause of which may easily be

* Read at a meeting of the North London Medical and Chirurgical Society, February 6th, 1929

missed. Again, a sequence which is not uncommon is for a local abscess to develop around the diseased bowel and for the abscess to rupture into the peritoneal cavity. This is a disastrous happening, as it results in a very acute general infection of the peritoneal cavity owing to the large amount of septic material suddenly released into the abdomen.

The first symptom recognized may be the rupture of an inflamed diverticulum into the bladder. I have known this happen on several occasions, and the result is most distressing to the patient. An acute cystitis results, with the passage of flatus and faecal material "per urethram," and the patient is generally very ill and in great distress.

Causation.

The exact cause of the formation of diverticula of the colon is not yet completely understood. There is no doubt that in some cases an inflammatory process takes place around the diverticula when they are quite small, almost microscopic, and this inflammatory process may spread to a considerable area of the bowel wall. On the other hand, diverticula may reach a considerable size and be very numerous without there being any signs at all of any inflammation around them. In fact, perforation of a diverticulum may occur and cause a general peritonitis without any inflammatory process in the bowel wall having preceded the perforation.

Treatment.

Unfortunately the condition is not so easily amenable to operation as is the case with appendicitis. The infective focus is not so localized, nor can it be so readily remedied by the surgeon. In the acute cases, where perforation has occurred with general peritonitis, the only treatment is to drain the abdomen and perform a colostomy well above the perforation. As a rule the perforation will be in some part of the pelvic colon, and in this event the artificial anus should be made with some portion of the left side of the transverse colon. In a few cases simple drainage of the abdominal cavity has been successful, the opening in the bowel closing up. This can hardly be relied upon, however, and is not likely to occur unless the perforation is very small. Deliberate closure of the opening caused by the ruptured diverticulum would seem a possibility, but this is seldom the case. The parts around the opening are much thickened and indurated, and such tissues do not lend themselves readily to satisfactory closure; omental grafting of the opening would be safer, but unless the diverticulitis is very localized attempts to close the opening will usually be failures and may be disastrous; colostomy is the best procedure. When a perforation has occurred into the bladder, immediate colostomy above the site of perforation is the only rational treatment. I have seen a number of such cases, and in all of them the opening into the bladder subsequently healed up quite satisfactorily.

The most difficult cases to deal with are those in which an abscess has formed in association with some part of the colon, and the abscess has subsequently burst or leaked into the peritoneal cavity. The obvious treatment is to drain the abdominal cavity and to drain the abscess cavity separately. Unfortunately what is generally found is that there is a dense mass of gut and adhesions forming the wall of the abscess, which is most difficult to drain properly, and that it is not possible to in any way disentangle or break up the adhesions without the certainty of damaging other parts of the intestine. These are most difficult cases, and even when the patient survives the initial peritonitis, residual abscesses and pocketing are the usual rule, and will call for all the skill and resources of the surgeon to circumvent. I know of few more dangerous lesions to meddle with than a mass of diverticulitis of the colon with adhesions to other organs and parts of the intestine. The lesion is highly septic and the density of tissue is only equalled by carcinoma. The abscess resembles a sponge more than an ordinary abscess cavity, and it is very difficult to establish any kind of satisfactory drainage.

When there is reason to suspect that an abscess has formed from perforation of a diverticulum, but the general peritoneal cavity is not involved, there should be no attempt to temporize in the hope that the abscess will subside. The condition is too dangerous, and even if a general peritonitis does not result, perforation of the abdominal wall or some hollow viscus will almost certainly take place and make conditions for operation more difficult. Operation in these circumstances is particularly difficult and dangerous, and very nice judgement is necessary to decide what is the best course to take. I prefer, when operating upon such cases, to use an oblique incision on the left side of the abdomen, the rectus muscle being dissected out of its sheath and displaced towards the right side; local anaesthesia of the rectus muscle is a great help. This gives very good access and allows of good draining in the flank if this should be necessary. The pelvic colon, assuming that this is the portion involved, should be freed if possible by very gentle manipulation, while the main abdominal cavity is well protected by large intra-abdominal swabs so placed as to localize as much as possible the contamination of the peritoneal cavity which may occur. The involved part of the pelvic colon should be lifted up, if it can be freed, and drawn well over into the left iliac fossa, and the abscess cavity properly drained with a tube or tubes. If the omentum is large enough it should be drawn down and stitched all round the damaged portion of the colon, so as to seal it off and at the same time prevent the small intestine from subsequently becoming adherent to it. The wrapped-up damaged portion of colon should be fixed with a few catgut sutures well into the left iliac fossa and away from the true pelvis, as if subsequent abscess formation should occur it will do less harm in this situation and will be much more accessible. I have had some very successful results from this method of treatment, and in one or two cases have been able to separate the diseased portion of the colon from the bladder, and thus prevent a perforation into that organ. Patients treated in this way have got perfectly well, and with reasonable care have been able to live normal lives for very many years. I have now quite a number of such cases under observation. They have been saved a colostomy, and the inflammatory mischief has in course of time entirely cleared up in most of them, although some have had temporary relapses. The fact that the inflammation is no longer involving the true pelvis renders treatment much safer.

If at the time of operation the damage to the bowel is too severe to justify this method of procedure a colostomy should be done well above the site of the trouble; this will generally mean a transverse colostomy. When this plan has been adopted the question will subsequently arise as to whether it is possible to close the colostomy. This is always a difficult question and will require careful consideration, as the patient's life is perfectly safe if he is content to keep the colostomy, and its closure will involve a fair amount of risk. It is doubtless worth some risk to get rid of the colostomy, but as this is mainly a question of comfort and convenience it hardly justifies running a serious risk to life.

Good x-ray photographs of barium enemata will be necessary to see if there is a free enough lumen to justify closing the artificial opening, and also to ascertain whether there is sufficient healthy bowel below the lesion to enable a resection to be done. If a closure is to be done it must not be postponed too long, or the bowel will have become too narrow below the colostomy. Six to eight months is probably about long enough, and, of course, in any case, complete subsidence of all inflammatory symptoms should have taken place. In most of the cases coming under my care the colon at the site of the trouble has been too badly damaged, or its lumen has become too restricted, to warrant any attempt at closing the colostomy without resection of the lesion. I have, however, on several occasions resected the damaged bowel and rejoined the ends successfully, but I have considered it safer to leave the closing of the colostomy to a subsequent operation after the newly joined bowel had properly united.

Resection of the damaged bowel is rather a difficult matter, as there are almost invariably quite a number of dense adhesions to be dealt with before it is possible to free the bowel enough for a resection, and it must always be borne in mind that we are dealing with old septic material, which must not be cut into. When the join has been

made, and as a rule only an end-to-end join is possible, the junction should be wrapped up in omentum. Occasionally it is possible to close the colostomy by short-circuiting the affected part of the bowel. In my experience this procedure has not been very successful, as the fact that faecal material can still get into the diverticulum has resulted in subsequent fresh attacks of inflammatory mischief.

TREATMENT OF GLAUCOMA BY ADRENALINE AND HISTAMINE.

(THE SO-CALLED "GLAUCOSANS.")

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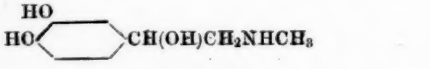
THE importance of any drug which has a beneficial effect on glaucoma, whether acute or chronic, can hardly be overestimated, and consequently it may be of interest to look into the claims made by several authors—notably by Hamburger (1923–28)—on the beneficial effect of the so-called "glaucosan" group of substances in bringing about a diminution of the intraocular tension. This name, introduced by Hamburger, is unfortunate, since the two substances upon which the "glaucosans" are based—adrenaline and histamine—are widely different in both their chemical constitution and their physiological properties.

THE ACTION OF ADRENALINE.

Adrenaline, which is the product of the activity of the chromaffine cells of the medulla of the suprarenal glands, is a methyl-amino-pyrocatechol, with the following formula (Takamine, 1901):



Since it contains an asymmetrical carbon atom there are two possible isomeric forms: the laevo-rotatory form occurs naturally, while the dextro-isomer can be made synthetically. The laevo-form is extremely active, being detectable in a dilution of one part in 250 million of saline (Pysemsky and Kravkov, 1912), but the synthetic dextro-isomer is considerably weaker, so that the racemic mixture has only about half the activity of the natural product (Stolz, 1904). Although the rationale of the action of this substance on the blood vessels has been the object of an immense amount of research since the original investigations of Oliver and Schafer in 1895, it cannot yet be said to be completely elucidated. The generally accepted interpretation of its activity at the present time is as follows:

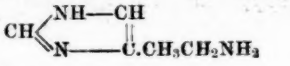
1. In very small doses it dilates the capillaries, probably by direct action upon the capillary walls, thus causing a small drop in general blood pressure (Dale and Richards, 1918) and an increase in the permeability of the capillary walls (Oinuma, 1924).

2. In larger doses, while the first action may to some extent persist, it is completely masked by an active constriction of all the arteries and arterioles which are supplied by the sympathetic nervous system; this is the generally accepted "classical" view of the action of adrenaline (see Anrep, 1912; Elliot, 1912–13; and many others), and it brings about a great increase of the blood pressure.

3. In relatively concentrated doses applied locally, adrenaline causes a direct contraction of the terminal arterioles, the capillaries, and the small venules (Cotton, Slade, and Lewis, 1915), a reaction which can be observed directly with the microscope by injecting a minute quantity into the skin (Carrier, 1922; Heimberger, 1925). Here the drug acts directly on the walls of the vessels, the reaction being equally vivid after denervation (Breslauer, 1919; Lewis, Grant, and Harris, 1927).

THE ACTION OF HISTAMINE.

There is a considerable amount of evidence that histamine, or histamine-like substances, are produced by all organs of the body. Like adrenaline it is an extremely reactive substance, an injection of one-hundred-millionth part of a milligram producing a well-marked effect. Its chemical name is imin-azolyl-ethyl-amine, with the formula:



The general action of histamine is to constrict plain muscle (Dale and Laidlaw, 1910); this includes the musculature of the arterioles, of the larger veins, and also, incidentally, of the pupil. This is accompanied by a dilatation of the capillaries (Dale and Richards, 1918), caused by a direct action on the walls of the vessels comparable to the effect of small doses of adrenaline. The first of these effects tends to produce a rise of blood pressure, and the second produces a profound fall. In such animals as the cat both of these reactions are evident; in dogs, monkeys, and man the constrictor effect on the arterioles is completely masked (Burn and Dale, 1926; Harmer and Harris, 1926), but the dilator effect on the capillaries seems to be universal throughout the mammalia (Lewis and Marvin, 1926; Lewis, 1927). So far as the blood vessels are concerned, therefore, the generally accepted action of histamine in man appears to be:

1. A dilatation of the capillaries by local direct action upon their walls.
2. A widespread dilatation of the arterioles by a local reflex nervous mechanism.
3. An increased permeability of the capillary walls leading to widespread oedema, a result of the direct action of the drug on the capillary walls (Drury and Jones, 1927).

It would seem, therefore, that in their general action the two substances, adrenaline and histamine, are antagonistic; and there is a large amount of evidence that they play such a reciprocal part throughout the body generally, histamine, or histamine-like substances, tending to dilate the capillaries, this influence being kept in check by the constrictor effect of adrenaline (and pituitrin) (see Dale, 1926).

ACTION ON THE EYE.

The action of adrenaline on the intraocular pressure was first adequately studied by Wessely (1900), Parsons (1903), and Henderson and Starling (1904), and later work has merely served to substantiate their conclusions (Thiel, 1924; Samojloff, 1925; and others). There are two main opposing influences at work: the local constriction of the vessels tends to bring about a lowering of the intraocular pressure, while the general rise of blood pressure tends to bring about a rise. In experimental animals either of these may be evident, or they both may occur, the second following the first; in man there is usually a period of hypotension which is followed by a slight rise. It would appear that in cases of simple glaucoma this reaction is retained, the fall of tension being more evident, but that in the acute or absolute forms of the disease the opposite condition may develop. When injected into the blood stream adrenaline dilates the pupil widely, an action which is evident on subconjunctival injection, but which is retained only with difficulty on instillation into the conjunctival sac except in specially sensitive persons.

After the work of the early experimenters several clinicians used adrenaline clinically for the relief of tension in glaucoma, with, in general, indeterminate results (see summary by Rupert, 1909). Erdmann (1914) and Köllner (1918) revived its use, and recently the extensive writings of Hamburger (1923–25) have attracted considerable attention to the matter. He used the drug as a subconjunctival injection of 0.2 to 0.3 c.cm. of 1 in 1,000 solution after the instillation of holocaine, and his technique has been extensively followed (Hagen, 1923; Gradle, 1924; Römer and Krebs, 1924; Heimann, 1924; Jaensch, 1924; Kayser, 1924; Kafka, 1924; Thiel, 1924–25; Safar, 1925; Dominguez, 1925; Vannas, 1927). Fromaget (1921) employed it as a retrobulbar injection, and he has been followed by Aubaret (1923), Bailliart and Bollack (1921), Liebermann (1924), and Bonnefon (1925); Knapp (1921) relied on drops instilled into the conjunctival sac; Thiel (1925) applied it as an ointment; and Gradle (1925) on a pledget of cotton-wool. While many of these observers reported good results, they were by no means invariably successful;

their findings have been thoroughly analysed by Vannas (1927). It has become evident that while in chronic glaucoma adrenaline may or may not do good, in acute conditions its use is definitely dangerous. Moreover, unpleasant effects have been noted from time to time (Mans, 1924; Ring, 1925; Rentz, 1925); for a rapidly increased blood pressure with a pulse running up to 200 a minute involving a considerable amount of collapse is not a thing to be desired in the average type of person who is a glaucomatous subject.

To avoid these unpleasant consequences Hamburger (1925) turned to the less active dextro-isomer of adrenaline, and, combining it with one of the precursors in its preparation (methyl-amino-aceto-pyrocatechol), he introduced the combination as "glaucosan." He claimed that this preparation produced a local vaso-constriction without any general reaction, and that it reduced the tension of the eye, usually for several days, and sometimes for several weeks. The action was, however, so weak that a subconjunctival injection was required, and therefore, in order that the remedy could be made sufficiently powerful to be used as drops, he combined the methyl-amino-aceto-pyrocatechol with synthetic laevo-adrenaline, and produced "laevo-glaucosan." This is said to lower the tension for some days and to dilate the pupil maximally.

Hamburger (1926) considers that the primary cause of glaucoma is a "relaxation of the vaso-constricting mechanism, thereby causing a repletion of the eye with blood"; adrenaline and its derivatives lower the tension immediately by causing a vaso-constriction, and he somewhat paradoxically explains the continued hypotensive action of the drug by the supposition that the reactive hyperaemia which follows the anaemia will lead to "softening of the eye." It must be admitted that this explanation is as unconvincing as it is difficult to follow. However that may be, while good results were claimed in chronic glaucoma, the preparation appeared to be unsatisfactory in acute cases of the disease (probably on account of the mydriasis). Hamburger (1926) therefore turned to histamine (which he called "amino-glaucosan"), a substance which, as we have seen, in addition to producing a capillary dilatation, brings about a very marked miosis by its action on plain muscle. Owing to the severity of its reaction and the short duration of its effects its use in chronic cases seemed undesirable; but in acute cases which are not absolute in nature Hamburger claims good, although not invariably successful, results. The effects of these drugs in clinical cases have been recorded by Fehr (1926), Darier (1926), Koch (1927), Pletnewa (1927), Seligstein (1927), Gifford (1928), Pischel (1928), and Böhm (1928), most of whom report favourably of them, although the results have not by any means been uniformly successful, nor has their action frequently been as long as has been desired. No one, so far as we know, has reported their use in this country; and the following notes may be of interest.

Clinical Cases.

The two drugs employed were those recommended by Hamburger—laevo-glaucosan in cases of chronic glaucoma, and amino-glaucosan for acute glaucoma; and they were administered exactly as recommended by him.

Laevo-glaucosan (L.G.) was given after the instillation of 1 per cent. holocaine; two drops were instilled into the conjunctival sac, giving ample time for absorption, and the injections were repeated three to five times at intervals of fifteen minutes. After instillation there was a considerable reaction, and always a greater or less degree of pain. The eye became white, the pupil dilated by a varying amount, and anaemic patches were sometimes visible on the skin of the lids and the cheek. Amino-glaucosan (A.G.) was given also after holocaine, one drop of the 2, 7, or 10 per cent. solution being instilled; the great hyperaemia, sometimes with chemosis, was invariably followed by severe pain. On some occasions where it seemed to be without effect it was repeated.

A. *Chronic Primary Glaucoma.*

1. Female, aged 74; primary chronic glaucoma with symptoms of two months' standing in both eyes; was under eserine on arrival; tension *plus*. L.G. three times in one hour; marked anaemic reaction; some pain; tension unaltered. Slight dilatation of right pupil; wide dilatation of left. Eserine instilled; tension lowered (eserine now more effective). Trephine.

2. Female, aged 37; chronic primary glaucoma of right eye; twelve months. Subacute attack; pupil half dilated. A.G. instilled; repeated in one hour. Severe congestive reaction with pain. Pupil unaltered, tension slightly down. Trephine.

3. Male, aged 43; chronic primary glaucoma; one week's history of symptoms; under eserine on admission; tension high. L.G. four times in one hour; tension and pupils unaltered; reaction marked with pain.

4. Female, aged 66; chronic primary glaucoma; indefinite history. Right tension full, left tension considerably raised. L.G. right and left. Pupils fully dilated; right tension lowered, left tension practically unaltered. Trephine right and left.

5. Male, aged 47; chronic primary glaucoma of right eye; six months' history. Tension full, pupil half dilated. L.G. four times in one hour. Marked reaction with some pain; tension down to normal; pupil widely dilated. Tension remained down three days, then rose slightly. Eserine; tension fell. Trephine.

6. Male, aged 53; chronic primary glaucoma of left eye; three months' history. Had been on eserine, which had kept tension down until present subacute attack, when it was without effect. L.G. four times in one hour. Marked reaction, pupil dilated, tension lowered to normal; began to rise in three to four hours; eserine instilled hourly. Next day tension normal. Trephine.

7. Female, aged 53; chronic primary glaucoma of right eye; six months' history. Tension full, pupil dilated. L.G. four times in one hour. Marked reaction with pain; pupil and tension unaltered. Trephine.

B. *Secondary Glaucoma.*

8. Male, aged 15; iritis with raised tension of left eye. L.G. four times in one hour. Considerable irregular dilatation of the pupil, cornea brighter; tension lower after the second instillation; after the fourth pupil again small, cornea becoming hazy. Irritated by atropine; hyoscine produced dilatation to one-half in three days, when hyoscine irritation supervened and tension returned to normal.

9. Female, aged 43; iritis with raised tension; three weeks' history. Right pupil contracted. L.G. four times in one hour; pupil fully dilated, cornea clear, tension lowered. Pupil contracting in three hours; heat, etc. Uninterrupted recovery.

C. *Acute Glaucoma.*

10. Female, aged 71; acute primary glaucoma; six weeks' history of symptoms. A.G., four instillations; tension fell (90 to 60 mm. Hg (Schiötz). In six hours cornea again becoming hazy, and pupil dilating. Eserine; cornea bright, pupil small, tension small. Later trephine.

11. Female, aged 64; acute primary glaucoma; one week's history; chemosis, pupil two-thirds dilated, tension very high. Dacryocystitis with muco-purulent regurgitation. Eserine for three days; tension lowered considerably; dacryocystectomy. Eserine for one day; then, the tension keeping high, A.G. repeated in one hour. Pupil and tension as before, chemosis and pain. Twelve hours later, posterior sclerotomy; tension down. Twenty-four hours later, large central corneal ulcer developing rapidly into an hypopyon ulcer. Two days later, despite all treatment, ulcer intractable, tension raised. Eye excised.

12. Female, aged 69; acute glaucoma; two weeks' history. Tension high, pupil dilated, cornea hazy, engorged iris, small hyphaema. Eserine, leeches, heat, etc., for two days; cornea slightly brighter, tension somewhat down. A.G., violent reaction, tension and pupil unaltered. Posterior sclerotomy. Eserine continued; tension almost normal. Trephine.

13. Male, aged 73; history of haloes for four years, right and left. Pain in right eye for two weeks. Right eye: cornea oedematous, pupil one-half dilated, circular, inactive, tension stony hard. A.G. four times; pupil small, tension unaffected for some hours. Twelve hours later, no chemosis or oedema, cornea bright, pupil small, tension very much lowered, but still full. Eserine and hot bathings for four days; tension beginning to rise. Trephine (choroidal detachment followed which subsided).

14. Female, aged 58; one week's history of pain and vomiting; had been on eserine during one week before admission to hospital. Acute primary glaucoma; much injection, corneal oedema, pupils two-thirds dilated, tension high. A.G. twice with interval of one hour. No improvement after six hours, then eserine, hot bathing, leeches, etc. Next day, tension lowered but still high, cornea still oedematous. Iridectomy.

15. Male, aged 50; acute primary glaucoma; 12 hours' history; right eye. Cornea hazy, pupil dilated and inactive, tension high and much pain. A.G.; one hour later pupil small but cornea still oedematous and tension still high, although lowered. A.G. repeated; pupil unaltered, tension very much down, cornea bright. Four hours later, tension higher; eserine, hot bathings, leeches, etc. Eighteen hours later, tension still above normal, with considerable pain. Iridectomy.

Conclusions.

Fifteen cases form a small number on which to build conclusions, but from our experience of them we would suggest:

1. So far as can be seen neither of the two drugs has any prolonged effect in lowering the intraocular tension. Their action would seem to be temporary and adjuvant to other treatment, postponing, perhaps, but not without any special reason replacing, operation. The action of the drugs is neither uniform nor dramatic.

2. In chronic primary glaucoma laevo-glaucosan cannot be depended upon to lower the tension; it does so in some

cases, but completely fails in others. It appears, however, that in conjunction with eserine a good effect can be produced in a case where eserine alone has remained ineffective.

3. The dilatation of the pupil caused by laevo-glaucosan may be valuable from a diagnostic point of view, since, so far as our experience goes, the dilatation is not accompanied by raised tension.

4. In secondary glaucoma laevo-glaucosan will succeed in rupturing synechiae which with other mydriatics remain unaffected. In cases of iritis with raised tension it may be effective as a preliminary measure when hesitation is felt in giving atropine at once, or where atropine has failed to relieve the condition. Owing to the accompanying anaemia, however, its repeated use would appear inadvisable in such cases.

5. Amino-glaucosan is an extremely potent miotic. It cannot be depended upon to contract the pupil and lower the tension in every case of acute glaucoma, but it would appear on occasion to be a very useful adjunct to eserine. In cases where the pupil remains dilated and the tension raised after the administration of amino-glaucosan, this preliminary treatment has undoubtedly made eserine effective subsequently in bringing about a contraction of the pupil and a lowering of the tension. No case has been met with where the drug has caused a rise of tension (as has been reported), but in several cases, although given every legitimate opportunity, it has been without any hypotensive effect.

6. Both drugs are accompanied by a severe reaction and pain, in some cases moderate, in others involving considerable distress. The occurrence of a hypopyon ulcer without other obvious cause after the use of amino-glaucosan suggests that the severity of the reaction on the superficial parts of the eye is not without danger to the cornea, especially in cases where infection is known to be present.

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THE PROBLEM OF PUERPERAL SEPSIS: THE BACTERIOLOGY OF THE PUERPERIUM.

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THIS paper deals with the bacterial flora of the cavity of the uterus after delivery, with special reference to the relation between streptococci and abnormalities of the puerperium. It follows our paper concerning the flora of the cervix uteri during healthy pregnancies. The importance of puerperal infection is so great that normal and morbid cases have been considered separately.

It will be seen that the widely accepted belief that morbidity in the puerperium is in the main due to a single cause—infection by *Streptococcus pyogenes*—requires modification in light of the results which follow. Particularly is this the case if the definition of puerperal pyrexia of the Ministry of Health (1926) be accepted as the standard of morbidity—namely, a pyrexia of 100.4° F. or more, affecting a woman within twenty-one days after childbirth or miscarriage, and lasting twenty-four hours on end or occurring more than once in any given twenty-four hours.

In point of fact, much confusion exists on this subject, for there is no precise definition of the several terms "morbidity," "clinical sepsis," etc., employed. This confusion is in no way dissipated by adoption of the too comprehensive standard of the Ministry, which rests on neither a clinical nor a bacteriological basis, and does not discriminate extragenital causes of raised temperature in the puerperium.

It seems very desirable to establish a method to differentiate cases of what may be termed "true" puerperal sepsis due to *S. pyogenes*, highly contagious and sometimes fatal, from morbid cases of subordinate clinical importance due to bacteria of low pathogenicity. A group of cases of "true" sepsis is described, therefore, to enhance this clinical and bacteriological contrast.

SOURCE OF DATA.

Our data are derived from examination of the following groups of cases.

(*a*) Normal puerperia exclusively. A group of 88 women confined at the City of London Maternity Hospital was examined, for the most part early in the puerperium.

(*b*) Morbid puerperia. (1) A consecutive series of 41 cases of puerperal pyrexia, as defined by the Ministry, selected from 460 women recently delivered at the City of London Maternity Hospital. (2) A series of 20 women, all of whom suffered from the severest clinical form of puerperal sepsis, some at the City of London Hospital and some at St. Bartholomew's Hospital.

METHOD.

The methods used have been those already reported in our paper on the bacteriology of pregnancy.[1] Uterine cultures have been made by a guarded swab introduced with the aid of a Fergusson's speculum. Risk of contamination of the swab from other parts of the tract was thus avoided. Aerobic and anaerobic cultures were made in every case. The investigation has been qualitative rather than quantitative. The number of organisms on a swab has often been small, for the swabs were taken for the most part early in the puerperium, from one to three days after delivery. Rather than risk overlooking the streptococcus for which we were searching, the procedure of shaking up swabs in broth, incubating, and plating out eighteen hours later, has been adopted. Use of the same technique and quantities of broth in every test has enabled us to form an approximate estimate of the richness in bacteria of every

GROUP B (1).—MORBID PUERPERIA.

STREPTOCOCCI PRESENT IN UTERUS.

Pyrexia of Genital Origin.

Case No.	Labour.	Puerperium.	Type of Streptococcus.	Other Bacteria.
9	Normal	Morbid	S. cervicis uteri	Diphtheroids
59	Normal	Morbid	S. faecalis	Enterococci diphtheroids
70	Twin birth	Morbid	S. pyogenes	B. coli
73	Vaginal and perineal tears. Membranes incomplete	Morbid	S. faecalis	Haemolytic staphylococcus
81	Slight P.P.H.	Morbid	S. pyogenes	Staph.
82	Membranes ruptured artificially. Perineal tear	Morbid	S. faecalis	B. coli
8	Normal	Morbid	S. pyogenes	Staph.
93	Normal	Morbid	S. pyogenes	Staph.
103	Breech, extended legs	Morbid	S. cervicis	Staph. albus
175	Manual removal of adherent placenta. Severe P.P.H. Transfusion	Morbid	S. faecalis	Staph. aureus
177	Perineal tear	Morbid	S. faecalis	B. coli
182	Artificial rupture of membranes. Severe P.P.H.	Severely septic. Blood culture sterile	S. pyogenes pure culture	Nil
184	Normal	Morbid	S. faecalis	Nil
185	Normal	Severe sepsis. Bilateral phlebitis. Blood culture sterile	S. faecalis pure culture	Nil
192	Induction by bougies. Long labour. Cervical tear. P.P.H.	Not seriously ill	S. faecalis	Nil
194	Normal	Morbid, slight	S. pyogenes	Mixed culture
239	Breech, P.P.H.	Morbid, slight	S. pyogenes few colonies	Mainly B coli
242	Long second stage. Severe P.P.H.	Morbid	S. salivarius	Staph. aureus
254	Normal	Morbid	S. cervicis	Staph. albus diphtheroid
255	Artificial rupture of membranes	Severe toxaemia. Mastitis	S. pyogenes pure culture	Nil
338	Twins. Manual removal of placenta. P.P.H.	Morbid	S. faecalis	B. coli

Pyrexia of Extragenital Origin.

301	Normal	Abscess of breast	S. pyogenes from abscess	Cervical swab not examined
435	Normal	Venous thrombosis of varicose veins	S. faecalis	B. coli

STREPTOCOCCI ABSENT FROM UTERUS.

Pyrexia of Genital Origin.

Case No.	Labour.	Puerperium	Bacteria.
35	Torn perineum	Retained products	Staph. diphth.
51	Severe P.P.H. Transfusion. Manual removal of placenta	Morbid	Staph. diphth. * B. Döderlein
72	Torn perineum	Retained products	Staph. Döderlein
80	Normal	Morbid	Diphth. haemol. staph.
85*	Slight P.P.H.	Morbid	Haemol. staph.
118	Forceps delivery. Long second stage	Morbid	Diphth staph.
170	Normal	Morbid	Haemol. staph.
191	Manual rotation. Craniotomy. P.P.H. from cervical tear	Morbid	Blood sterile, urine B. coli, c. swab B. coli
253	Normal	Morbid	S. alb., B. coli
272	Perineal tear	Morbid	Staph. aureus
327†	Breech, prolapse of cord. Leg brought down	Morbid	Diphth.
358	Normal	Morbid	Diphth. staph.
380	Normal	Morbid	Haemolytic staphylococcus

Pyrexia of Extragenital Origin.

61	Normal	Pneumonia	Enterococci staphylococci
65	Normal	Mastitis	Diphth. haemol. staph.
145	Normal	B. coli pyelitis	Haemol. staph.
155	Normal	B. coli pyelitis	Diphth.
263	Perineal tear	Cold in head	Diphth.

* Swabbed within twenty-four hours of delivery—that is, too early. † Swabbed very late in puerperium.

sample. At the outset inoculations were made directly from swabs to plates, but often no growth was obtained on these primary plates, or at best a meagre yield, in no way representative of the flora recovered by the later method—that is, from broth cultures and plates therefrom. The bacteriological findings in each group are briefly summarized.

GROUP A.—*Normal Puerperia (88 Cases).*

The bacteria found represent the normal uterine flora during the puerperium, and are as follows.

Staphylococcus (44 per cent.).—The most characteristic and frequent organism found; appears very early and is last to disappear, not infrequently persisting beyond the lying-in period. In most instances it produces the characteristic offensive butyric odour on solid media of *S. epidermidis*. Roughly 10 per cent. of the staphylococci found caused vigorous haemolysis of the rabbit's blood medium used. The staphylococci were preferentially aerobic, favouring the view that they were of extraneous origin.

Diphtheroids (20 per cent.).—Many forms of diphtheroid bacilli were found. The majority were of robust growth, appeared early, and persisted late in the puerperium.

Döderlein's Bacillus.—Often the first organism to appear after labour, of frequent occurrence, though less often present than the staphylococcus, preferentially anaerobic.

Enterococci (19 per cent.).—Large ovoid cocci tending in broth cultures to occur in pairs or short chains of four or six, forming large luxuriant pale colonies; more probably indigenous in the vagina than derived from faecal contamination; indifferently aerobic or anaerobic.

Streptococci (19 per cent.).—*S. pyogenes* was found in 2 cases; *S. cervicis uteri* in 7 cases; *S. faecalis* in 9 cases; *S. salivarius* in 1 case. *S. pyogenes* was obtained in mixed culture from two women who experienced normal labours and puerperia. These two strains were vigorously haemolytic, and exhibited "rough" characteristics in culture; there was therefore no reason to doubt their relationship to true *S. pyogenes*, with which their biochemical reactions also agreed. The growth of members of the streptococcus group in general, and of *S. pyogenes* in particular, does not seem to us to be greatly favoured by anaerobic conditions. Anaerobiosis, however, by hindering the growth of the coarser saprophytes, assists the isolation of streptococci. Exceptionally, both growth and haemolytic power of the delicate non-pathogenic streptococcus from the cervix uteri, described in our previous paper, are assisted by anaerobiosis. This cervical streptococcus, like *S. pyogenes*, fails to reduce neutral red, and does not render raffinose and mannite broth acid, but here the resemblance ends; we suggest the name *Streptococcus cervicis uteri* for this organism.

Coliform Bacilli.—Somewhat unexpectedly, *B. coli* was found infrequently (4 per cent.). Bryce,[2] working at the Melbourne Maternity Hospital, found *B. coli* only twice in 119 cases examined in pregnancy (1.7 per cent.), and we ourselves but thrice in the series of 153 normal pregnancies reported by us (2 per cent.). The observation that this organism seldom finds its way into the genital tract under normal conditions is of

more than passing interest, for, in our experience, *B. coli* is second only to *S. pyogenes* as a cause of serious puerperal sepsis, *S. faecalis* being third on the list of pathogenic organisms, followed by *Staphylococcus haemolyticus*.

Other Organisms.—A Gram-negative coccus similar to that occasionally recovered from the male urethra was found in one case, but no gonococci. A paired, bean-shaped coccus, in shape and size closely resembling the gonococcus, but Gram-positive, noted also by Bryce, was found on two or three occasions. A very large coarsely growing Gram-positive coccus —the colonies described by Bryce as "crumby"—was found fairly frequently. An unnamed organism of the *B. subtilis* group grew from a batch of five swabs received on the same day, and was considered an accidental contamination. A feebly Gram-positive chromogenic bacillus, reminiscent of *B. pyocyaneus*, but forming yellow, not green, pigment, was isolated from several heavily infected swabs.

Anaerobes.—*B. welchii* was not found; other unidentified spore-bearing bacilli, not necessarily obligatory anaerobes, were occasionally found in mixed culture.

Sterile (9 per cent.).—In a few instances no growth was obtained. As will be shown later, the period of maximum floral richness in the puerperal uterus is from the third to the fifth day after delivery; the swabs of our series, therefore, were probably not all taken at the optimum time. Moreover, no normal case was examined on more than a single occasion.

GROUP B (1).—*Morbid Puerperia (41 Cases)*.

Group B (1) comprises 41 cases of puerperal pyrexia as defined by the Ministry of Health standard for 1926. The group includes all the morbid cases in a consecutive series of 450 women delivered in the City of London Maternity Hospital in the latter part of last year, and may therefore be considered representative. The cases in this group are tabulated under two headings in accordance with the presence or absence of streptococci. A further subdivision is made into cases with raised temperature recognizably due to genital and those due to extragenital causes.

Generally speaking, the number of organisms present in samples from morbid cases far exceeds that from normal cases, and potentially pathogenic organisms—for example, *S. faecalis* and *B. coli*—are found more often.

The streptococci isolated were classified as *S. cervicis uteri* 4 examples, *S. salivaris* 1 example, *S. faecalis* 9 examples, and *S. pyogenes* 8 examples. *S. pyogenes* was present, therefore, in 8 only out of 34 cases of puerperal pyrexia of genital origin, to which may be added a ninth case with *S. pyogenes* abscess of the breast.

The morbid cases of this Group B (1) may also be classified from a clinical standpoint as (*a*) Minor, (*b*) Major, (*c*) Serious.

(*a*) *Minor.*—The majority, 35 cases, were mild.

(*b*) *Major.*—Three cases; *S. pyogenes* was obtained in mixed culture from the cervices of two moderately severe cases, and a third presented the clinical picture of marked and rather prolonged toxaemia, although her temperature did not exceed 102° F.; a pure culture of *S. pyogenes* was obtained from the cervix of this patient.

(*c*) *Serious.*—Three women were seriously ill; from their cervices respectively *B. coli*, *S. faecalis*, and *S. pyogenes* were recovered in pure culture. Hence the severity of symptoms in the small but important group associated with *S. pyogenes* was proportionate to the intensity of infection.

Dr. Lucy Bryce, in the paper to which reference has been made above, aptly points out that the presence in pure culture of a relatively fastidious organism such as the *S. pyogenes* probably indicates an accession of invasive power, which is associated with virulence for the host, and suggests that the organism in this condition also acquires the power of dominating in culture vigorous strains which would usually outgrow it. A precisely similar phenomenon is familiar in streptococcal follicular tonsillitis. An alternative but somewhat more abstruse explanation is based on immunological principles. It is thought that a specific infection primarily stimulates the non-specific protective mechanism, and as a result the normal and relatively harmless bacterial population is eliminated by the "first-line" defensive powers of the host. A virulent infection resists this non-specific defence and continues to thrive in pure culture until such time as it is subjected to a more slowly acquired specific immunity; at this stage the normal saprophytic population reappears.

Conversely, the occurrence of *S. pyogenes* in mixed culture is indicative of low invasive power against a resistant host, and is associated, as we have shown above, with milder clinical disturbances or none.

GROUP B (2).—*Severe Puerperal Sepsis (20 Cases)*.

The onset of severe puerperal sepsis is often attended by a rigor, and the aspect of the patient is characteristic. Temperatures from 103° F. upwards, with violent fluctuations and remissions, occur, and a pulse rate of 130 and over is almost pathognomonic. In 19 out of 20 such cases chosen at random to illustrate this form of the disease a pure growth of *S. pyogenes* was obtained by swabbing the cervix; in one no streptococci were found by this method, but were present in blood culture. Including this case, blood cultures were positive in 10 cases, not undertaken in 5, and negative in 5. There was reason to believe that the number of organisms present in the blood afforded a measure of the severity of the illness. The conclusion follows that in severe puerperal sepsis *S. pyogenes* is almost universally present in pure culture in the cervix uteri and in the majority of blood cultures.

DISCUSSION OF RESULTS.

It appears to us that existing standards of puerperal pyrexia are unsatisfactory and that the definitive terms "morbidity," "clinical sepsis," "puerperal fever," etc., have no precise clinical or bacteriological basis. As a practical alternative we suggest the comparatively simple procedure of examination of a swab from the uterus in all doubtful morbid cases, believing that the cervical swab is of the same value in the diagnosis of streptococcal puerperal sepsis as is the throat swab in diphtheria. Actually, the recognition of the vigorously haemolytic *S. pyogenes* on blood agar plates is an even simpler matter than the identification of the Klebs-Loeffler bacillus from serum. Cases proven due to *S. pyogenes* infection would call for guarded prognosis, and steps would be taken to prevent spread of infection; in the remainder, treatment would proceed along general lines without need for isolation or notification.

As the matter stands at present, if the "severe" and "clinically septic" cases be excluded from consideration, it appears that there is no essential difference between the bacterial flora of the normal and of the morbid puerperium. The injuries and exhaustion which follow prolonged labour, with or without instrumental delivery, seem the decisive factors in rendering the maternal tissues vulnerable to infection by otherwise harmless bacteria. Cases of this class relatively seldom give serious anxiety to the obstetrician and are not infectious.

The picture presented by cases of *S. pyogenes* infection is altogether different, and it is this which has at all times excited the attention of observers, both on account of the severity of the illness and the rapidity with which infection spreads from case to case. As a consequence, bacteriological investigation of the lesser degrees of morbidity have not been sufficiently undertaken, while the preponderance of *S. pyogenes* infection in the more serious cases has led to the admittedly erroneous conclusion that puerperal morbidity is in the main due to this organism.

A similar conclusion has been reached by Colebrook,[3] who, however, in a letter to the *British Medical Journal*, reports *S. pyogenes* as a sporadic infection in only 6 out of 85 morbid cases recently examined by him at Queen Charlotte's Hospital. We do not fully understand the finding of so few examples of *S. pyogenes* in Colebrook's series, but we are whole-heartedly in accord with him in advocating routine bacteriological examination of the cervix uteri in morbid cases.

THE COURSE OF BACTERIAL INVASION OF THE UTERUS DURING THE PUERPERIUM.

The manner in which the normal condition of bacterial sterility within the uterus is restored is not without practical importance as bearing on the question of treatment by douching, etc., during the puerperium. In the course of studying our first group of 88 cases it became apparent that the uterus was invaded very soon after delivery by a profuse growth of organisms from contiguous surfaces which diminished in the later days of the puerperium.

FitzGibbon and Bigger[4] found streptococci in the uterus in 27 of 50 women examined, and later, using even greater care to obtain samples exclusively from the cavity of the uterus, found streptococci in 7 of 25 women examined on the fifth to the sixth day after delivery. Their attention was concentrated on the streptococcus group, and no account was taken of other organisms present.

Stähler and Winckler[5] found the uterus free from infection in most cases by the ninth or tenth day, and, in a

later research, using improved methods, obtained no more than 30 per cent. of positive cultures by that time.

Loeser[6] investigated the problem still more thoroughly, finding the uterus sterile immediately after delivery, but gradually becoming infected so that 25 per cent. of all cervical cultures were positive on the first day, 50 per cent. on the second day, and 100 per cent. on the third day of the puerperium, infection of the fundus uteri following later, reaching its height by the fifth day and afterwards diminishing.

This was confirmed by the study we conducted at frequent intervals during ten days of a trial group of 12 cases. We found the uterus to be invaded almost at once, positive cultures being obtained in some cases within five to six hours of delivery; infection increased until the third day, persisted unchanged or diminished slightly by the fifth day, and had almost disappeared by the eighth day. This progressive invasion, culminating at the third to the fifth day, affords a ready explanation of the observed delay in the development of puerperal pyrexia until this time. In one-third of a series of 74 febrile cases analysed by us,[7] a rise of temperature occurred on the third day, and in two-thirds from the second to the fourth day inclusive.

Everard Williams and Reynolds[8] have shown that barium sulphate emulsion, dropped into the uterine cavity by means of a specially designed cannula and syringe, gradually passed into the Fallopian tubes and reached the peritoneal cavity through the abdominal ostia. The process was traced by consecutive radiographs. They found by experimental ligation of the tubes that barium salts insufflated into the vagina in rabbits travelled upwards only when the ostia were open. The motive force was held to be an aspiration into the abdominal cavity, and ascending infection of the genital tract was thus explained. It appears, therefore, that the uterus after delivery is inevitably invaded by bacteria from contiguous sources, irrespective of manipulation.

CONCLUSIONS.

1. The organisms recovered from the uterus after labour in the majority of cases of "puerperal pyrexia" are similar to those which are found in normal puerperia. It seems possible that the injuries incidental to prolonged labour or instrumental delivery are the chief factors which determine the minor pathogenicity of which these organisms appear to be capable on occasion.

2. *Streptococcus pyogenes* is occasionally found in the absence of symptoms of disease, but in that case it is always in association with other organisms.

3. When *S. pyogenes* is found in cases of "puerperal pyrexia" the severity of the illness is proportionate to the number of streptococci present. The presence of *S. pyogenes* in the cervix uteri should remove the case from the category of "puerperal pyrexia" and allot it to that of "puerperal fever," to be treated accordingly.

4. A means of differentiating *S. pyogenes* infection from other causes of morbidity is required in cases of doubt and in every case occurring during an outbreak of puerperal sepsis. Bacteriological examination of the cervix uteri is an effective method of diagnosis.

5. The uterus is rapidly invaded by bacteria from contiguous surfaces early in the puerperium.

6. Uterine infection normally increases up to the third or fifth day and afterwards diminishes.

We are indebted to Mr. Malcolm Donaldson for valuable criticism and advice, and acknowledgement is due from one of us to the Medical Research Council for assistance in conducting the experimental inquiry. We thank the members of the staffs of St. Bartholomew's and the City of London Maternity Hospitals for access to their cases.

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PURPURA FULMINANS FOLLOWING A MILD CASE OF SCARLET FEVER.

BY

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THE following case of purpura fulminans occurring in the course of scarlet fever is, on account of its rarity, worthy of record.

The patient, a girl of 5 years, was admitted to hospital as a case of scarlet fever. The history was to the effect that three days previously she had an attack of sickness, headache, and sore throat, followed by the appearance of a rash on the trunk and limbs. On examination she appeared thin and under-developed. The cheeks were flushed, and she had definite circumoral pallor. A bright punctate rash was present on the body and limbs. The tongue was coated, though peeling had commenced at the margin, and the papillae were enlarged. The throat was congested and the tonsils were enlarged. There was a slight degree of cervical adenitis. Examination revealed no abnormality of the heart and the lungs. The temperature was 100° F., pulse 124, and respirations 28.

During the succeeding days the child appeared to be quite comfortable. She took her food well and slept well. The pyrexia which was present on admission continued between 99° F. and 100° F. for three days, when it rose to 102° F. This rise coincided with an increase in the size of the cervical glands. On the sixth day the temperature fell to normal and remained so throughout. The cervical adenitis subsided completely in a few days. Apart from this rise of temperature there was absolutely no indication of the approach of the more serious condition.

On the morning of the twenty-first day of illness an alteration was noted in the general appearance of the patient. She was now dull and listless and very pale. The pulse, though not increased in rate, was softer than it had been previously. Examination showed areas of ecchymosis over (1) both trochanteric regions, (2) the lateral surfaces of the thighs, (3) the posterior surfaces of the calves. These areas were of a deep purple colour with a narrow bluish margin, and the outline presented a definite scalloped appearance. On palpation there was no tenderness and the affected parts were rough and indurated. On the posterior surface of the left calf the condition had advanced further and a large vesicle had formed on the area of ecchymosis. When seen later in the day the child had become much worse. The pulse rate was increased and the breathing was rapid and shallow. The areas of ecchymosis, especially those on the upper part of the legs, had increased greatly in size. During the night the condition progressed rapidly and the child died the next morning.

Post-mortem Findings.

At the *post-mortem* examination the following points were noted. The areas of ecchymosis extended over part of the anterior, the lateral, and the posterior surfaces of both thighs, and reached from the level of the great trochanter to within two inches of the knee-joints and spread over the posterior and inner surfaces of both calves. There was also an area on the sacral region. An incision was made across one of the areas so as to involve both affected and unaffected parts, and it was found that the affected tissue was deeply injected. The demarcation of affected from unaffected tissue was as well defined in the deeper tissues as on the surface. On examination of the various organs there was no evidence of any internal haemorrhage. The heart, lungs, liver, spleen, kidneys, and bladder all appeared quite normal. In the stomach and intestine there was not the slightest evidence of petechial haemorrhages.

Discussion.

The remarkable feature of the case was that the rapidly fatal condition followed on a very mild attack of scarlet fever. Further, there was an entire absence of any haemorrhage such as bleeding from the gums or from any other mucous surface, haematemesis, melaena, or haematuria.

Other points of interest were the occurrence of the condition at the end of the third week, the sudden onset with no premonitory symptoms, and the very short duration of the purpuric condition. The ecchymosis was confined to the lower limbs and was more or less symmetrical.

A few somewhat similar cases have been recorded. Kerr[1] reported a few cases of purpura haemorrhagica, all of

which, however, were associated with haematemesis and haematuria, and followed cases of septic scarlet fever. Goodall and Washbourn[2] have recorded four cases of fulminating purpura haemorrhagica, and they regarded the condition as a rare complication of scarlet fever. The cases of Rolleston and McCririck[3] were characterized by the absence of haemorrhage from mucous membranes, and in this respect they resembled the one under discussion. However, the period of illness from the first appearance of ecchymosis till the fatal termination was in the present case extremely short. The total duration was only thirty hours. These features bring the present case into the category of purpura fulminans.

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A CASE OF ELEPHANTIASIS NEUROMATOSA.

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CEYLON.

VON RECKLINGHAUSEN in 1882 drew attention to an association of lesions affecting the skin and nervous system—namely, soft tumours of molluscum fibrosum, cutaneous pigmentation (freckles and maculae) scattered all over the body, and multiple fibrous tumours of nerves. Since then two other manifestations, occasionally present, were found to be classifiable in the same group—namely, plexiform neuro-fibroma and elephantiasis neuromatosa of Virchow.

Diffuse neuro-fibromatosis, or von Recklinghausen's disease, consists essentially of a diffuse overgrowth of the connective tissue of the nerves, especially that of the endoneurium separating out the nerve fibres. The fibrous overgrowth may be confined to a single nerve or a plexus, or it may be generalized to include cranial, spinal, and sympathetic nerves—large or small, superficial or deep. When the small nerves in the skin and subcutaneous tissues are affected the overgrowth spreads beyond the nerve filament in which it originates, causing soft fibrous tumours of the skin (molluscum fibrosum), which may be few and widely spread, or so abundant as to cover every inch of an individual except his palms and soles. They vary from the size of a pin's head to a fig, and may be sessile or pedunculated.

FIG. 1.—The patient. Note the pendulous scalp in the occipital region and subcutaneous nodules in the affected limb.

Plexiform neuro-fibroma is a fibromatosis affecting a group of contiguous nerves, commonly those of the head and neck (fifth and superficial cervical). Commencing shortly after birth, it gradually forms a pendulous mass composed of convoluted, thickened, or beaded nerve cords held together by connective tissue.

Elephantiasis neuromatosa of Virchow is closely allied to plexiform neuro-fibroma and molluscum fibrosum. Here the fibromatosis of the cutaneous nerves merges into a diffuse overgrowth of the skin and subcutaneous tissue, uniformly enlarging the affected region, such as a limb, as in other forms of elephantiasis. The overlying skin may be normal, thickened, or pigmented, and may sometimes contain palpably thickened and coiled nerves, as in plexiform neuroma. The condition is usually congenital and starts at a pigmented spot or a molluscum fibrosum.

In many cases of neuro-fibromatosis death results from sarcoma, the change manifesting itself clinically by rapid enlargement of the lesions. The only treatment is excision of removable masses.

The case here reported is remarkable for the colossal growth of a limb.

The patient, a male Tamil, looks more like a boy of 15 than the man of 20 he is said to be. His outstanding feature is the gigantic size of the left lower limb, which forms a pendulous mass representing about a third of his body weight, and prevents

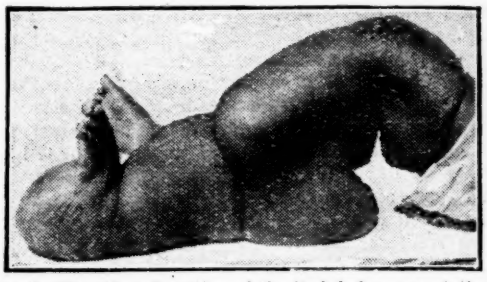

FIG. 2.—The affected portion of the limb before amputation.

him from walking except with the very greatest difficulty. The abnormality is said to have been present at birth and to have progressed with the growth of the boy, especially during the last fifteen years. In addition, he presents the following lesions: small, soft, freely movable, painless, subcutaneous tumours scattered all over the body, particularly on the abdomen, but absent in the palms and soles; a small pachydermatocele of the occipital scalp; pigmentation of the skin in the form of freckles and larger maculae—the palms are pigmented, the soles less so; pigmentation of the mucous membrane of the mouth, and muddy discoloration of the conjunctivae as in argyrosis. He complains of some pain in the affected limb. His mental faculties are not impaired.

Skiagraphy showed a marked atrophy of the epiphyses and smaller bones resulting in distorted outlines. The shafts of the long bones showed an irregularly distributed thickening of the cortex, and greater elongation than on the sound side.

Treatment consisted of amputation at the upper third of the thigh, under spinal anaesthesia. Considering the amount of tissue removed the patient stood the operation very well. The amputated limb weighed 35 lb., the rest of the patient 65 lb.

Dissection of the Amputated Limb.—Apart from the enormous increase in the connective tissue of the soft parts there was also an increase in the bony development, as evidenced by the greater length of the affected limb. The normal tibia (right) was 12 inches long, the abnormal one 15½ inches. The normal fibula was 12 inches, the abnormal one 16½ inches, its lower end curving round the astragalus like a smoker's pipe bowl, and thrusting up the foot bones into a position of talipes equinus (Fig. 3). The skeleton of the affected foot was only a quarter of an inch longer than the other. Both tibia and fibula were bowed, rough, and pitted, the latter especially about its middle. The periarterial sympathetics of the femoral artery at the site of amputation were visibly enlarged. Professor A. G. Smith, to whom I sent a section of it, reported as follows:

FIG. 3.—Skeleton of amputated limb.

"The lumen of the artery seemed to be small. It, and to a lesser extent the vein, were completely ensheathed in a mass of flattened, hypertrophied, tortuous nerve cords—evidently greatly enlarged periarterial sympathetics. The individual nerve bundles were clearly to be distinguished."

Histological examination by Professor Ellison confirmed that the hypertrophied nerves belonged to the autonomic system. He said they were the finest example of non-medullated nerve tissue he had ever seen.

It is interesting to consider what part the autonomic hypertrophy played in the overgrowth of the limb. Were they parts of the same process, or were the hypertrophied sympathetic nerves responsible, even partially, for the generalized overgrowth of the limb, through disordered vaso-constrictor and secretory impulses?

FIG. 4.—Patient's mother.

The patient's mother (Fig. 4), who was about 40 years of age, was 5 feet in height, and her physique suggested achondroplasia. The patient was her only child. Despite a certain degree of deformity of her infant's limb at birth, there was no special trouble at the confinement. She said that her parents were normal, but that her grandmother showed similar lesions to hers, which consisted of over 2,000 minute cutaneous tumours and scattered subcutaneous swellings; freckles and patchy pigmentation of the skin; and a diffuse swelling on the dorsum of the right leg, which was stated to be similar to the initial lesion affecting her son.

EOSINOPHILIA IN INSULIN THERAPY.

A PRELIMINARY REPORT TO THE MEDICAL RESEARCH COUNCIL.

BY

R. D. LAWRENCE, M.D., AND O. B. BUCKLEY, M.B., M.R.C.P. M.R.C.P.

THE occurrence of a high degree of eosinophilia in a diabetic patient treated with large doses of insulin was first observed in 1927.[1] Various blood counts gave percentages of 12, 20, 11, 15, and 17.5, and a thorough investigation showed none of the usual causes of eosinophilia to be present. It therefore seemed possible that insulin therapy *per se* might be responsible for the abnormal blood count, and this point has been investigated in other diabetics. It has been found that, of the 20 insulin cases examined, 10 show an eosinophilia varying between 4 and 20 per cent.

Non-Insulin Diabetics.

As far as we are aware, no abnormal eosinophilia has been reported in diabetics. To control this point blood counts have been carried out on 12 diabetics who were not having insulin. In only one (and he suffers intermittently from eczema) has an eosinophilia of over 4 per cent. been found. The others are mostly between 0.5 and 2 per cent., the same as in the non-diabetic population attending our out-patient departments. An eosinophilia of 4 per cent. or over has therefore been taken as a definite degree in classifying our results.

Insulin Cases.

Twenty insulin cases, of all ages and degrees of severity, have been investigated. Of these, 10 have an eosinophilia of 4 per cent. or over, and 5 of 9 per cent. or over. The highest observed is 20 per cent. In none has there been any evidence of parasitic or skin diseases, and the only asthmatic had a low count of 1.6 per cent. No factors have been observed to account for the production of eosinophilia in half these cases and its absence in the other half, such as general allergic tendencies, varying skin reactions at the site of insulin injections, or variations in the diet followed. On the whole the eosinophilia bore no relation to the size of insulin dose, although one insulin-resistant case[1] on 200 units a day showed the highest figure. In a few cases, where repeated blood counts were carried out, considerable fluctuations in the degree of eosinophilia were observed. One case showed 17 per cent. at one time and only 0.8 per cent. on another occasion four months later. It is possible, therefore, that eosinophilia may have been temporarily present in others of our series, but was not discovered by a single blood count. It was noticeable that an increase in the eosinophilia occurred in several cases during the very hot weather in July and August, 1928, being lower before and after these months. This observation we intend to confirm next summer if climate permits. It would be interesting to know the degree of eosinophilia in insulin cases in hot countries.

The Cause of the Eosinophilia.

So far we have only established the presence of eosinophilia in a large proportion of insulin-treated diabetics and its absence in non-insulin cases. No factor other than the insulin has been discovered to account for this eosinophilia. The following ways in which insulin may be responsible suggest themselves.

1. Insulin, by virtue of its physiological action, might produce an eosinophilia. This is hardly likely, and the fact that we have found an eosinophilia in a case of diabetes insipidus treated by injections of pituitary extract is against this possibility.

2. The eosinophilia may be an allergic phenomenon produced in susceptible patients by the protein nature of insulin or by protein impurities in the solution. The latter, however, are almost absent in the brands of insulin (B.D.H. and B.W.) used by most of our patients. Moreover, there has been no sign of local allergic phenomena, such as wheals and urticaria, in these cases.

3. Insulin, being an acid solution, has an irritative effect on the skin and subcutaneous tissues, manifested locally by stinging and oedema at the site of injection. Eosinophilia is possibly produced by this constant skin irritation in the same way that it is so frequently associated with skin disease.

No definite explanation of insulin eosinophilia can be offered at present. The possibilities are being further investigated.

SUMMARY.

An eosinophilia has been found in 10 out of 20 diabetics treated with insulin. It is absent in cases treated without insulin.

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INSULIN FAT ATROPHY A TRAUMATIC ATROPHIC PANNICULITIS.

BY

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A PECULIAR form of local fat atrophy in the subcutaneous tissues following repeated insulin injections has been described, and a case was shown by me before the Clinical Section of the Royal Society of Medicine.[1] In all cases, despite instructions to the contrary, the insulin has been repeatedly injected into the one area instead of varying the site. The situation of the atrophy varies with the site of injection, the arms, thighs, and abdominal wall having been affected. A dimpling of the skin first appears, the depression then spreading in area and extending deeply. As a rule the underlying tissues are not affected, but where the injections have been given deeply the underlying muscle may also atrophy; the skin may adhere to the underlying tissues, but does not itself undergo any change in texture. Neurological changes are generally absent,[2 3] the integrity of the somatic and sympathetic nerve supply being demonstrated by the presence of all forms of sensation, and the pilomotor (goose-skin) reflex on faradic and direct galvanic stimulation[4]; impairment of pain, tactile and thermal sensation may, however, occur.[5] In one of the cases reported no sign of the atrophy remained two and a half years after ceasing injections, though the depression had been deep and distinctly felt through the clothing.[6] The

following brief account of my patient's history is fairly typical.

A married woman, aged 56, a Dutch Jewess, large and rather obese, has suffered from diabetes mellitus for fifteen years. There is a strong family history of the complaint, two sisters and two maternal uncles suffering from diabetes, and her mother having died in diabetic coma. The urine has been intermittently sugar-free, but the patient will not keep to a strict diet. Thirst, polyuria, and pruritus vulvae have not been present for some years. There are now no abnormal symptoms except a feeling of lassitude and ill health when the diet has been too generous; physically she appears quite healthy.

Insulin therapy was begun in March, 1927, 20 units twice daily being injected into the arms, more or less in the same area each time, some of the injections being given deeply. In March, 1928, the patient noticed a dimpling of the arms in the injection area, which began to extend deeply. Synthalin treatment was attempted, but was useless in controlling the glycosuria, and insulin therapy was therefore continued by injections into the thighs.

Physical Examination.—The patient has well-covered arms, but on each side of the point of injection below the insertion of the deltoid there is a deep depressed area where subcutaneous fat seems to have entirely disappeared. The skin here appears perfectly normal and is not adherent to the underlying muscle; there are no sensory nervous disturbances, objective or subjective, and the pilomotor reflex is intact. The muscle at the bottom of the depression feels abnormally thin, and the humerus can easily be felt through it. Power and function in the arm are not impaired; indeed, the condition gave rise to no symptoms until the patient's fear was aroused by the indiscreet remarks of a medical attendant who prophesied paralysis, so that she now complains of a feeling of weakness. The thighs show an early stage of the same lesion. The fasting blood sugar (November 8th, 1928) was 0.142 per cent., and urine sugar 1.84 per cent.

The accompanying table is an analysis of the recorded cases of this condition. Case 1 is my own; Cases 2 and 3 were described by Barborka[7]; Cases 4, 5, and 6 by Carmichael and Graham[3]; Case 7 by Chapman[6]; Cases 8 to 12 by Depisch[5]; Case 13 by Mentzer and du Bray,[2] and Cases 14 to 21 by Rabinowitch.[8]

Case.	Sex.	Age.	Duration of Diabetes in Years.	Duration of Insulin Treatment.	Case.	Sex.	Age.	Duration of Diabetes in Years.	Duration of Insulin Treatment.
1	F.	56	15	1	12	M.	38	7	2
2	F.	34	4	2½	13	F.	54	6	2½
3	F.	60	½	½	14	M.	38	5	3¼
4	F.	49	5	1½	15	M.	22	2	2½
5	F.	39	18	3	16	F.	14	2½	2½
6	M.	8	—	2	17	M.	8	½	½
7	F.	48	—	½	18	M.	42	1¾	1¼
8	F.	50	—	½	19	M.	54	4½	3½
9	F.	45	5	½	20	F.	35	2½	2½
10	F.	54	4	1	21	F.	28	5¼	3½
11	F.	53	—	½					

Fourteen of the 21 recorded cases have occurred in women, a fact which, taken together with the greater incidence of diabetes in men, suggests that women are definitely more liable than men to suffer from the condition. The age incidence varied between 8 and 60 years, with an average, including two boys aged 8 and a girl aged 14, of 39.5; excluding these children the figure is 44.4 years. The known duration of the diabetes has varied from 6 months to 18 years, with an average of 5.3 years, whilst the duration of insulin therapy before the appearance of the fat atrophy has varied between 3 months and 3 years 6 months, with an average of 1 year 8 months. The dose of insulin has varied from 10 to 120 units daily, being given in one, two, or three injections a day. The duration of treatment before the onset of atrophy appears to bear no relationship to either the dose or the daily number of injections of insulin. The amount of subcutaneous fat is of no significance as some of the patients have been obese and others slender.

In Case 2 there was no further atrophy three months after ceasing injections; in Case 6 improvement began in three weeks, and in Case 7 no sign of the atrophy was present two and a half years afterwards. Cases 6, 14, and 18 were complicated by pulmonary tuberculosis; Cases 3 and 19 had advanced arterio-sclerosis.

In the early days of insulin therapy acute local reactions such as necrosis and sterile abscesses occurred, but with the introduction of better preparations they became rare. An urticarial type of reaction, either local or general, and probably due to protein sensitiveness, is occasionally seen, especially among patients using the American iletin (insulin Lilly), which is prepared from pig pancreas; with the elimination of extraneous substances, and improvement in the technique of preparation, even these reactions are becoming rare. It is unlikely, however, that foreign proteins are the cause of the local fat atrophy described, as in only one of the cases recorded was there any undue immediate reaction[3]; with this patient there was at first a local reaction with English insulin, but on returning to this preparation after using Lilly insulin no reaction was obtained.

Examination of rabbits shortly after an injection of insulin[9] elicits no signs of degenerative changes in the connective tissue cells of the panniculus adiposus, but these cells are widely separated by a mucigenous fluid, which produces the localized subcutaneous oedema seen following an injection, and which in the human subject takes eighteen to thirty-six hours to subside. The neighbouring muscles, however, show marked degenerative changes, with leucocytic infiltration, as appears to happen in human muscle if the insulin is deeply injected. Lawrence[10] found that after frequent injections of insulin sections of the skin showed infiltration in the neighbourhood of the vessels by lymphocytes and histiocytes, with some plasma cells and eosinophils, whilst three years after discontinuing the injections there were, in addition, fibrous strands passing down from the corium and dividing the fat into coarse lobules. Mentzer and du Bray, on the other hand, were unable to find lymphocytes in their patient, but recorded the presence of a calcified cyst.

It is perhaps natural to attribute the disappearance of the fat to the presence in the insulin of fat-splitting enzymes derived from the pancreas, but Rabinowitch,[8] after concentrating down large quantities of insulin (under low pressure and temperature), was unable to detect pancreatic lipase on applying the usual tests—litmus milk, copper soap, olive oil bile, and ethyl butyrate. He therefore concluded that, unless his method of concentration destroys lipase, none is present. The sterilization of the needle is not at fault, as is shown by the diversity of methods employed by the patients (boiling, ethyl alcohol, lysol, and methylated spirit); the brand of insulin used has also varied among the cases (Lilly, Burroughs Wellcome and Co., Chemosan).

That the reaction in the subcutaneous fat is not specific is borne out by the fact that the early histological appearances following injections of insulin, hypertonic glucose, or saline solutions are identical[9]; whilst the depressed areas of fat atrophy have been observed at the injection sites in narcotic addicts,[2] and foci of lymphocytes have been found on section. A somewhat similar condition, but far more intense and advanced, is seen in traumatic fat necrosis of the breast, where areas of necrosis and liquefaction in the fat are surrounded by abundant newly formed connective tissue.[11 12]

It is probable that the injection of insulin or other substances damages the delicate protoplasmic cell envelope of the fat cells so that fat globules are released, and, acting as foreign bodies in the tissue, result in the formation of histiocytes which take on lipophagic activity. When the slight trauma is constantly repeated, atrophy of the fatty layer is likely to result. If the trauma is more severe, as following an injection of ether into the subcutaneous tissues, a similar but more intense reaction may result,[13] with the formation of a greater amount of fibrous tissue, so that a close resemblance to the appearance in traumatic fat necrosis of the breast is seen.

A patchy atrophy of the fatty layer of the skin resembling the condition under discussion, preceded by the ingestion of the fat by large phagocytic cells, has occurred in association with periods of pyrexia, suggesting an infective origin of the lesion[14]; whilst similar histological appearances were described by Parkes Weber in a case of relapsing panniculitis.[15]

Conclusions.

The subcutaneous fat atrophy described as following repeated injection of insulin into the subcutaneous tissues is a non-specific reaction, the result of repeated small traumata to the panniculus adiposus, and not due to the presence of any pancreatic lipase in insulin, so that the condition might suitably be called a traumatic atrophic panniculitis.

I wish to express my thanks to Dr. du Bray of San Francisco, Dr. Chapman of Bridlington, Yorks, and Dr. Rabinowitch of Montreal for supplying me with details of their cases.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PAINLESS LABOUR WITH INVERSION OF THE UTERUS.

In view of recent communications on painless labour I believe that the following clinical notes may be of interest.

A multipara, aged 27, had had two previous pregnancies, both of which were normal. She was breast-feeding the last baby when she became pregnant and, therefore, had no idea of the date of commencement of pregnancy.

On November 15th, 1928, she had been performing her daily household duties as usual. At 4.20 p.m. she complained of "slight stomach-ache" with a desire to defaecate; at 4.30 p.m. she had a slight motion, and as a result of straining "felt something come down into her front passage." She arose from the lavatory seat, and without any pain, so she states, delivered herself of a child, which fell to the floor, the umbilical cord being torn. She picked up the infant, went upstairs, and lay on her bed. A friend notified the maternity department of the Radcliffe Infirmary, and a nurse was sent out; she found the patient in good condition with a pulse of 96 per minute, and the child rolled in a blanket. She ligatured the umbilical cord, which was about 9 inches long. The placenta was lying in a pool of blood on the floor. The nurse then examined the mother, and found at the vulva a swelling which she rightly diagnosed as an inverted uterus. She wrapped the organ round with sterile pads and sent for the patient's doctor, who at once ordered the patient to the maternity department of the hospital.

When I saw the patient the pulse was good and she was not in the least degree in a state of shock; I found a partial inversion of the uterus with a portion of the membrane still attached. She was given an anaesthetic, and the surrounding areas and vulvar hair were thoroughly treated with iodine, the inverted portion of the uterus being cleaned up with mercury biniodide (1 in 1,000). I stripped away the membranes and returned the uterus to the pelvis, and the patient was then given a hot intrauterine douche of mercury biniodide (1 in 4,000) followed by saline solution. I injected intramuscularly 1 c.cm. of pituitrin with the same amount of aseptic ergot.

The patient did not have the slightest rise of temperature throughout the puerperium; she and her child left the hospital on the twelfth day, perfectly well. She gave the history that with her first labour she had definite labour pains throughout, but not excessive. With her second confinement "had only about two pains, and these were quite trivial." The present labour was quite painless.

The interesting points of this case are the entire absence of shock, which one usually associates with inverted uterus in the course of delivery; the puerperium absolutely normal; and the child none the worse for its unusual entrance into the world.

I am indebted to Dr. F. G. Proudfoot, K.H.S., the senior honorary obstetric physician, for permission to publish this case.

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LOCAL INJURY AS A POSSIBLE CAUSATIVE FACTOR IN SARCOMA.

REPORT OF A CASE.

INJURY has been regarded as an exciting cause of malignant tumours from the earliest times, and especially by the laity. The part played by various forms of chronic irritation in the production of certain types of epithelioma is undeniable. Dealing with bone sarcoma, Coley (*Annals of Surgery*, April and May, 1911), in a review of 870 cases, traced a history of antecedent local injury in 23 per cent. Of these, in 38 per cent. the tumour developed within the first month after the injury, and in 70 per cent. within the first six months. Discount must be made for the numerous slight traumata to which every active individual is constantly subject, and which may be recalled only by close questioning after the development of a tumour. But the following case illustrates so closely the rapid growth of a sarcoma in direct relation to a definite injury that it seems worthy of record, although it is not possible to be certain that the injury did not merely break down and disseminate a small pre-existing focus of malignant disease.

A railway signalman, aged 45, was in perfect health until April 19th, 1928. On that day, while on duty, he was pulling over a heavy signal lever with his left hand and his head was turned fully to the right, as he was speaking to the telephone boy. He felt something snap in the left side of his neck, and at once experienced a sharp pain, severe enough to make him sit down. He consulted his doctor on April 21st. Dr. Harrowell of Great Haywood found on that day a small swelling the size of a hazel nut under the middle of the left sterno-mastoid muscle. The man continued at work until May 4th, when he again saw his doctor, as the swelling was increasing in size. He ceased work on that day. A skiagram taken a few days later showed no evidence of injury to the cervical vertebrae.

On May 13th his condition was as follows: A florid healthy-looking man, cheerful and in no discomfort. The left side of the neck, from the mandible to below the clavicle, was the seat of a brawny swelling, more prominent in the middle, extending forwards to the margin of the larynx, and back to the edge of the trapezius muscle. The swelling was not tender, it did not pulsate, and no thrill was felt or heard over it. The skin at its margins showed a bluish-purple discoloration. The left pupil was contracted and there was definite weakness in the left deltoid muscle. He was afebrile.

He was admitted to hospital on May 19th. The swelling had markedly increased in size in the interval. On May 21st the left arm became oedematous and paretic. Two days later he could only swallow fluids, and his voice was reduced to a whisper. On May 24th an exploratory operation was undertaken in the hope of relieving the laryngeal pressure. The whole left side of the neck was infiltrated with growth; he died some twelve hours later of cardio-respiratory failure.

Post-Mortem Examination.—Body well nourished, left arm oedematous. The swelling of the left side of the neck extended from the mastoid process and occiput above, to the scapula behind, and to below the clavicle in front. It was more prominent in front just anterior to the mid-point of the sterno-mastoid muscle. On dissection the swelling was found to consist of an unencapsuled mass of new growth. The mass extended from the mastoid process down to the first rib, and behind as far back as the scapula. It surrounded the clavicle and was infiltrating the deep fascial planes of the neck and the prevertebral muscles. Posteriorly the skin also was infiltrated by growth. The carotid sheath was completely surrounded, likewise the subclavian vessels and the upper cords of the brachial plexus. The lymph glands of the area were themselves enlarged and infiltrated by growth. In places the growth was of a purplish colour. There was oedema of the mucous membrane of the left arytenoid process. The oesophagus was pressed upon but not occluded by the growth. There was no sign in the mouth, pharynx, or larynx of any primary focus. The clavicle and first rib, though surrounded by growth, were not invaded by it. The mediastinal glands were not enlarged. The viscera showed no secondary deposits and no noteworthy abnormalities.

On microscopic section the growth proved to be an endothelial sarcoma of high malignancy.

The mass of growth removed *post mortem* was roughly conical, with a vertical measurement of 6 in. and a base of 4 in.

The prominent clinical feature of the case was the rapidity of growth of the tumour, an increase visible from day to day. The importance of the case from the medico-legal point of view is illustrated by the verdict of the coroner's jury, which was as follows: "Death was due to a cancerous growth in the neck caused by an injury sustained in the course of his work." Medical evidence had been given to the effect that the injury was responsible for the rapid increase of the tumour, but probably not for the occurrence of the tumour.

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Reports of Societies.

MEDICAL INDICATIONS FOR INDUCTION OF ABORTION.

THE meeting of the Medical Society of London on March 25th, with Dr. J. W. CARR in the chair, was devoted to a discussion on the medical indications for the induction of abortion and premature labour.

Mr. EARDLEY HOLLAND, in opening, touched first on the medico-legal aspect. The law regarding abortion was compressed in a paragraph in the Offences Against the Person Act, 1861, where it was laid down as unlawful to procure or attempt to procure abortion except with the object of saving the mother's life or of avoiding serious injury to her health. The medical profession was entrusted with very generous powers. It had never been possible to lay down strict rules as to the medical indications, and if it had been possible they would have required constant change in accordance with the march of medical science. Diabetes, for example, was once an absolute indication, but since the introduction of insulin diabetic women could with little risk pass through pregnancy and labour. Some people thought that during the past few years there had been a lowering of the professional standard of responsibility with regard to the induction of abortion, but for his own part he believed the medical profession to be just as honourable a body of men as ever. It was necessary to clear the mind of conscious or unconscious prejudice. The detailed discussion of the medical indications, Mr. Eardley Holland said, he must leave, with the true modesty of the modern gynaecologist, to his medical colleagues. The old gynaecologist would have considered himself perfectly competent to pass judgement, but the younger generation of gynaecologists were not so competent, their leanings being more towards surgery and less towards medicine. The positive indications about which there was more or less general agreement were few in number; beyond these there were a large number of debatable indications, and beyond these again a heterogeneous collection of medical, social, and personal states which could not be classified. Among the more or less positive states he mentioned acute and chronic nephritis, chronic valvular disease of the heart, advanced pulmonary tuberculosis, Graves's disease, and insanity. Among the debatable indications which had come his way were hypothyroidism, hyperthyroidism, certain cases of cardiac disease, less advanced pulmonary tuberculosis, albuminuria or eclampsia in a former pregnancy, severe mental and nervous disturbance in early pregnancy following upon a difficult and dangerous previous confinement, and multiple arthritis deformans, which seemed to be made worse by pregnancy. Then came a little group of indications which might be termed eugenic, including refractory syphilis in the mother, and idiopathic epilepsy—rather flimsy in itself, but, like other indications of the kind, accompanied by social and economic considerations which just turned the scale. Lastly, there were cases which depended not on one indication but on a conglomeration of circumstances. In one case, for example, the patient, aged 45, was suffering from debility following a severe operation for infected gall-bladder, and had a bad family history of tuberculosis. In another case, in addition to a very poor condition of the mother, the father was a mental degenerate, and was said to have seriously injured a former child. The induction of abortion was an uncommon operation both in hospital and private practice, though more uncommon in the former. At the London Hospital between 1924 and 1927, out of 4,000 gynaecological operations, 31 were for the induction of abortion, the indications in nearly all the cases coming within the positive group. In his private cases since 1919, out of about 3,500 patients seen, he had performed the operation for inducing abortion on 28 occasions. The proportion of cases dealt with on what he called positive indications was smaller in private than in hospital practice, and a certain number, carried out at the instance of colleagues, fell within the class of what he had described as debatable indications, on which in the abstract perhaps not everyone would agree, but each case had to be considered strictly on its merits, with due regard to the responsibility placed in the hands of the medical profession.

Dr. B. T. PARSONS-SMITH dealt with the cardiological aspect of the question, passing in review some considerations on the termination of pregnancy in heart disease. He emphasized the serious consequences which pregnancy imposed upon such patients. In the most favourable circumstances additional circulatory strain was inevitable, and the process of pregnancy materially prejudiced the circulatory reserve and favoured the development of decompensation. At Queen Charlotte's Hospital, over a period of fifteen years, the total of 196 cardiac cases were admitted. The pregnancy in 49 of these cases was artificially terminated as follows: induction of abortion, 5; induction of premature labour, 34; Caesarean section at term, 10. The total deaths for the whole "heart" group numbered 32, and for those in which the pregnancy had been artificially terminated, 10—namely, 2 following induction of abortion, 7 following induction of premature labour, and 1 following Caesarean section. It must be assumed that the majority of heart patients would develop some degree of failure during pregnancy, but that proper antenatal care would in most cases enable adequate compensation to be maintained. In a relatively small proportion of cases heart failure might be of so grave a character and so refractory to treatment as to threaten a serious if not fatal issue. This latter group was mainly composed of patients in whom auricular fibrillation and considerable enlargement complicated the underlying conditions of structural heart disease. In all these cases pregnancy constituted a grave risk. Decompensation might be regarded as inevitable, and, failing improvement under treatment, active intervention was justifiable. Every case must be judged on its own merits. One was justified in advising intervention in those cases in which heart failure, especially if it arose in the earlier months of pregnancy, progressed in spite of treatment, and equally in those patients where failure developed and there was a history of decompensation in previous pregnancies. Finally, it must be also remembered that the process of induction in patients with heart disease and failure might, and very probably would, itself constitute a serious maternal risk, as evidenced by the figures from Queen Charlotte's, which showed a mortality rate of 40 per cent. following induction of abortion, and 20 per cent. following induction of premature labour.

Dr. BERNARD HART, who spoke from the standpoint of a psychiatrist, said that the psychoses, or definite insanities, and the psycho-neuroses, or so-called functional nervous disorders, required independent consideration from the point of view of this problem. Psychoses occurring in association with pregnancy might be dealt with under three headings: (1) where a psychosis developed after the occurrence of pregnancy; (2) where pregnancy occurred in the course of a pre-existing psychosis; and (3) recurrent psychoses. With regard to the first group, it was formerly held that the psychoses developing during pregnancy and the puerperium were definite entities constituting special forms of mental disorder; this view had now been generally abandoned. So far as this group was concerned, it was clear that pregnancy was only a circumstance of minor importance, and its removal was not likely materially to affect the course of the disorder. Abortion was therefore not justifiable from the psychiatric standpoint. The second group comprised cases of exhaustion psychosis, a form of disorder in which toxic factors or emotional strains might play a

decisive part. In this group the pregnancy was a factor of definite causal importance, but it had generally been noted that the induction of abortion did not materially affect the course of the mental disorder. On the whole, cases arising early in pregnancy tended to recover before confinement; cases arising late in pregnancy, to recover after confinement. Psychiatrists were increasingly reluctant to recommend termination of the pregnancy in these cases for purely psychiatric reasons. The operation of abortion might itself act as a factor tending to accentuate an exhaustion psychosis. With regard to the group in which pregnancy arose in the course of a pre-existing psychosis, the considerations just mentioned applied with redoubled force. Abortion for purely psychiatric reasons was rarely justifiable. As for recurrent psychoses, two subgroups had been distinguished—one in which the former attacks of insanity had no relation to a pregnancy, and the other where a psychosis had developed in association with a former pregnancy or puerperium. In the first of these subgroups each case must be decided on its merits. Where several attacks had occurred, abortion would seem clearly justifiable on the ground that a continued pregnancy was likely to act as a source of stress. In the second subgroup the indications for abortion were weighty. Coming to the psycho-neuroses, the speaker said that this was a much more difficult field, and one in which there was no place for rigid principles or opinions. This was a sphere of disorders where psychological factors played an important part in causation, and amongst such factors the anxieties and fears centring around pregnancy might be of fundamental importance. Where there was a pre-existing psychoneurosis, and where the effect of pregnancy was not itself a cause of any anxiety, there was no indication for abortion. There seemed no clear evidence that pregnancy brought special dangers in a psycho-neurotic case, except in so far as its existence aroused fresh distress, but there were a great number of cases in which the pregnancy gave rise to acute anxieties and conflicts. The induction of abortion here, no doubt, would relieve the symptoms and perhaps avert the development of a serious nervous breakdown. But the decision must rest on a question of degree, and nowhere could a well-marked dividing line be drawn. There was a series of cases where severe anxiety conditions passed over into clinical factors—a definitely melancholic type. Here the factor which dominated the problem at issue was the risk of suicide. In all these cases the attention of the psychiatrist must be focused upon the central problem of the probable effect upon the mental and nervous health of the patient of allowing the pregnancy to continue. But factors of many kinds had to be considered in determining this probable effect, and the final decision must depend upon the force and interaction of all these factors.

Dr. GEOFFREY MARSHALL said that he had followed up a small group of cases of pregnant women referred from an ante-natal clinic to the tuberculosis department of which he had charge. There was great difficulty in deciding in a given case whether it was a positive or a debatable indication. Certainly the cases could not be grouped according to the amount or the extent of lung involvement. Where a patient had been known to suffer from definite symptoms of pulmonary tuberculosis for a good many years, in spite of the fact that the lesions were fairly extensive, she might be expected to go through pregnancy and labour without any great harm, but where the disease was a recent one the condition might be expected to be worsened by pregnancy. Cases in which there was only a short history were picked out, and the gynaecologists were asked to terminate the pregnancy.

Dr. ANTHONY FEILING noted that among the positive indications mentioned by Mr. Holland there appeared Graves's disease. The speaker believed that if a patient with this disease became pregnant, which was rather unlikely to happen, she had a good chance of going through the pregnancy quite well. Another positive indication set out was acute and chronic nephritis, but this obviously depended very much on the severity of the condition, and he hoped it was not intended that in every case of acute nephritis labour must be artificially terminated. As to hypothyroidism, it was well known that patients with true myxoedema did not become pregnant at all; in milder degrees he could not see why it should be necessary to induce abortion. As for epilepsy, the number of cases of epilepsy affecting one parent in which it was justifiable to terminate pregnancy must be small. Only about 30 per cent. of epileptic persons had an epileptic heredity.

Dr. H. B. DODWELL asked whether severe paroxysmal asthma, incapacitating the woman every winter, would be regarded as an indication. Dr. T. C. CLARE spoke of a pregnant woman who had a single kidney. Was this an indication for abortion? Dr. J. W. CARR, from the chair, said, with regard to phthisis, that in his early days it was believed that during pregnancy phthisis tended to remain quiescent, but flared up acutely after parturition. Was there any danger of an acute "flare-up" after the induction of abortion?

Mr. EARDLEY HOLLAND quite agreed with Dr. Feiling about myxoedema. With regard to single kidney he would certainly have induced abortion. He appreciated what Dr. Parsons-Smith had said about heart conditions, and considered it wonderful how patients with severe cardiac disease passed successfully through labour. Dr. PARSONS-SMITH said that the large majority of women suffering from cardiac conditions would, with adequate rest, pass through pregnancy in normal fashion. Dr. BERNARD HART devoted his reply to discussing the assessment of the risk of suicide in psycho-neurotic pregnant women.

INDUSTRIAL DERMATOSES.

THE Sections of Dermatology and Epidemiology and State Medicine of the Royal Society of Medicine combined, on March 21st, for a discussion on "Industrial dermatoses, their causation, recognition, prevention, and treatment." A large exhibition of photographs of skin conditions due to occupations was provided by Dr. R. Prosser White, Dr. W. J. O'Donovan, Dr. S. A. Henry, Dr. H. A. Cookson, and others.

Dr. J. M. H. MACLEOD, who occupied the chair, said that no more than the fringe of the subject could be touched, but if the discussion excited a keener interest in the problems of the industrial dermatoses it would have served its purpose. The recognition of injuries to the skin from contact with irritants as a result of occupation dated far back in the history of medicine. He had before him a translation by the present President of the United States of a monumental work published in the middle of the sixteenth century by Agricola. In this book the author pointed out the dangers of ulceration from contact with corrosives. Occupational dermatitis did not figure largely in the literature of this country until 1775, when Percival Pott wrote his classic paper on chimney-sweep's cancer, but so far as the speaker could make out it was really Robert Willans who gave the first systematic description of occupational dermatitis, describing the psoriasis palmaris of shoemakers, a dermatitis in metal workers, grocer's itch, and washerwoman's eczema. Since those days the subject of occupational dermatoses had become familiar, and workmen's compensation and industrial insurance had given it an almost exaggerated prominence. There still remained many unsolved problems, and the cause of some of these conditions was still obscure. It was not known, for example, whether baker's itch was due to the flour or to imperfect cleansing methods by the workman. Then there were the problems of idiosyncrasy and allergy as factors in causation. There was some tendency for cases to be labelled occupational dermatoses when in fact the true cause was some pre-existing skin disease or congenital defect. He hoped that the debate would be the means of causing more co-operation between the dermatologist and the industrial physician. He added that this was the first occasion on which a discussion at the Royal Society of Medicine had been opened by a lady; Dr. Sibyl Overton, as medical inspector of factories to the Home Office, had had exceptional opportunities of studying occupational dermatoses at first hand.

Dr. SIBYL OVERTON said that it was being realized that the subject of industrial dermatoses was of the greatest importance both to the individual and to the nation. Through dermatitis, industry might lose many thousand man-hours daily, as well as huge sums in compensation.

Was the increase of dermatitis in industry real or apparent? A vast and increasing number of irritants were used in industry capable of producing dermatitis. The classification of dermal irritants according to their type of action was only partly practicable; there often was a multiplication of modes and causes. Injury to, and separation of, the horn cells was the keystone of industrial dermatoses. The causative agents voluntarily reported to the Home Office each year revealed a steady increase. Alkalis had headed the list for the last three years. Of the industries concerned, engineering had reported the greatest number of cases for this period. The ages and previous history of workers reported as affected with dermatitis in 1928 showed the highest percentage of recurrent cases in males over 50, while a very large number of primary cases occurred in workers under 30. The speaker gave an account of special inquiries into dermatitis in certain industries—namely, baking and flour confectionery, biscuits and sugar confectionery, french polishing, calico bleaching, printing, and dyeing. Of 400 bakers and pastrycooks whom the speaker had examined in various parts of the country, only 12 were suffering from dermatitis, 9 being bread bakers. Only three cases, all slight, occurred among machine mixers of dough. Methods of removing staining from the skin were often highly productive of dermatitis. There was need for increasing knowledge of harmless and effective methods of cleansing the skin in certain industries. Experience had shown the following means of prevention to be effective, their common object being to protect the integrity of the horn cells: (1) emollients before and after work; (2) complete removal of the irritant by harmless methods after work; and (3) inspection of hands and arms by an experienced observer, with a view to enforcing early treatment of minor injuries, such as cuts and burns, scrupulous cleanliness of hands and arms and of overalls, and removal from irritants and prompt treatment for early cases.

Dr. WILLIAM DYSON commented on the type of trade dermatitis which clinically and histologically was indistinguishable from cases usually classified as eczema. It was defined as a superficial non-microbic inflammation of the skin caused in all cases by external irritation in a predisposed subject. He did not recognize any difference between this type of case and eczema, except that the former occurred in a manual worker. The predisposing causes were hyperidrosis, xeroderma, and ichthyosis, senile degenerative changes in the skin, debility, tuberculosis, and anaemia. Relapses were frequently seen, and the cause underlying this liability to recurrence brought into discussion the complicated problem of sensitization. Sensitization to a specific irritant, such as one saw in primula dermatitis, was extremely rare in trade dermatitis, but a general hypersensibility of the skin after long-standing or repeated attacks of dermatitis was common. He held that absorption of toxins from damaged or inflamed epithelium was the causative agent in the production of this hypersensibility. With the object of trying to find scientific data in support of this theory, he had had blood sugar estimations made in over fifty cases. These cases were selected from a number which showed sensitization by having evidence of dermatitis in other parts than the areas exposed to irritation. The results of the investigation suggested: (1) that when sensitization was present a high blood sugar figure was to be expected; (2) that when the products of inflamed epithelium were being absorbed one found on the average a higher blood sugar content than when those products were being discharged on the surface. Thinking that this hypersensitiveness might be an anaphylactic phenomenon he treated a number of patients with injections of their own blood with the object of producing an anti-anaphylactic state, and he described the results obtained. As for prognosis, this was good in a first attack, providing no obvious predisposing causes were present, but bad if the case was of long standing or there had been repeated attacks. It was especially bad if the dermatitis developed in a man who had been working at his trade for many years before he had his first attack. The means of prevention were medical examination before a man was employed and the periodical inspection of all employees.

Dr. HOWARD MUMMERY described his experiences as medical officer to a large catering firm with 5,000 employees, contending that watchful care kept the incidence of occupational dermatoses low. Apart from regular inspection, and application of suitable treatment in early cases, it was important to exclude people from occupations for which they were not fitted. The dry, inelastic skin predisposed to the occurrence of eczema and other skin conditions, and the fissuring allowed the entry of pathological bacteria. He contended that there was no pathological lesion peculiar to bakers. In the factory mentioned dermatitis was of low incidence and steadily decreasing.

Dr. H. MACCORMAC said that the most difficult group to understand were the non-specific eruptions, generally eczematous, which occurred in people who worked at a variety of occupations. The eczema occurred during work, but whether caused by the trade was a matter of dispute. He described an investigation into the dermatitis found among photographers; he thought metol largely to blame.

Sir THOMAS LEGGE approached the question sympathetically from the standpoint of the worker, and said it was the duty of the medical man to inform the sufferer from occupational dermatosis that he could make a claim for compensation through the certifying factory surgeon for his district. The speaker related some of his experiences while he was an inspector of factories.

Dr. W. J. O'DONOVAN feared that if the matter had been solely in the hands of professional dermatologists the great mass of occupational dermatitis would have remained largely undiscovered. Now, however, he thought the pendulum was swinging in the wrong direction, and that the figures were grossly inflated. Many certifying factory surgeons were content to certify cases without reference to dermatologists; but the chief increase was attributable to the incursion of administrators, lawyers, and accountants; hence financial interests loomed large. He feared it was sometimes the worker's mind which was sensitized rather than his skin.

Dr. PROSSER WHITE stressed the importance of knowing the physico-chemical action on the skin of the particular drug or irritant at fault in order to deal adequately with these cases. He agreed that the chief skin injury in occupations was caused by alkali, since that was the most used dirt and stain solvent. The question of sensitization was very difficult, and he thought the modern tendency was not to emphasize sensitization so much.

Dr. ALLAN PARSONS said he had been chiefly interested in baker's itch, a subject on which he had conducted an investigation for the Ministry of Health; but Dr. Overton's address showed that this subject could well be left to the care of the Home Office. There were some interesting cases of dermatitis in hop-pickers. He found that most of the "hoppers" suffered from abrasions and cracks due to pulling the hop flowers off the vines. They had a papular and pustular erythema, with extreme irritation of hands and forearms, and in many cases the face was affected. The same people suffered from the condition year after year. The condition was not very severe; 52 patients attended hospital for treatment for a total of only 81 days.

Dr. LANCASHIRE analysed 100 cases of trade dermatitis which had come under his attention; 13 per cent. of these were not due to trade conditions, though they had been certified as such by the factory surgeon; 20 per cent. were due to exposure to aniline dyes; and 7 were cases of baker's itch, which he regarded as a genuine condition peculiar to bakers and confectioners, and caused invariably by handling the dough. He was sure some of these people were directly sensitive to the handling of dry flour. Eighteen cases occurred among rubber workers, and 8 of these were in rubber tyre builders.

Dr. F. E. FREMANTLE, moving a vote of thanks to the speakers, said he regarded the discussion as a most notable one, and one which was important from the point of view of future legislation, at a time when the State took an increasing interest in helping to insure the worker against accidents in ordinary life. The desire, however, was open to great abuse; definitions were apt to be framed and accepted without due regard to the medical aspect.

Reviews.

FUNDAMENTALS OF SURGERY.

MR. H. S. SOUTTAR has written a textbook of surgery which has many unusual aspects. In his very title, *The Art of Surgery*,[1] the author challenges criticism. "Surgery," he says, "is essentially an Art, for it demands of those who would pursue it a combined dexterity of hand and eye, and an instinctive perception of values, which are the characteristics of the true artist." Dexterity of the eye (a questionable use of words) may be a necessary attribute of a practised craftsman of surgery, but even this will not convert him into an artist; for few would maintain that the surgeon is the creator of any new moral or spiritual experience, which alone distinguishes "the true artist" from his fellow craftsmen. It seems ungrateful to carp at Mr. Souttar's title-page, for this can scarcely affect the value of the contents of the book; yet it may be important to avoid any exaggeration of the surgeon's claims to be a superior person. The values that he learns to perceive are material values, and he is therefore not an artist. It is on this basis that patients are willing to entrust their bodies to his hands. His craftsmanship must be guided and supplemented by intellect, and it is only in the laboratory that he may give rein to the processes of the imagination.

Mr. Souttar is well known to be a sincere, balanced, inventive, and expert craftsman, and the excellence of his book is further proof of this. He is justly appalled at the bulk of the accumulated experience which has to be brought to bear upon modern surgery, and he seeks to lighten the student's burden by describing fully only what is fundamental. Other writers of textbooks have attempted, with varying success, the same process of sifting, but none have had the wit to devise so excellent a method of driving their words home by means of the marginal illustration. The page has to be somewhat large to accommodate the text with margin wide enough for even small drawings, and unless these margins are fully used much space is wasted. This is, in fact, the only possible criticism of Mr. Souttar's method, that he has not carried it far enough, for several hundreds of additional drawings might usefully find a place in the many blank margins. Any student, however, with any capacity for drawing might get much amusement and profit by adding his own diagrams and illustrations. The book contains in addition twelve coloured plates, which are of small value, though they probably add much to the cost of the book. There seems to be a belief among publishers that coloured plates help to sell a textbook, though it may be doubted whether this is really so except in the case of works on dermatology. Most students would be more influenced by a reasonable price than by a few coloured plates on unpleasant shiny paper. Mr. Souttar clearly does not suppose them to be of great importance, as he nowhere provides any list or index of illustrations, and we would ask him to consider omitting them from the next edition. There will assuredly be another edition, for the book is comprehensive, "up to date," practical, and attractively written, so that it cannot fail to find a large number of readers. The margins are used for the headings of the subject-matter as well as for the drawings, so that there is no interference with the continuity of the text. The book is consequently much easier to read than are most textbooks, and this feature, combined with the visual emphasis provided in the margins, should relieve many students of the necessity for using any sort of "cram-book" when once they have familiarized themselves with Mr. Souttar's survey.

It was a bold undertaking to start once again on the "one-man" book in this age of specialization and composite pictures, but the gains given by the resulting cohesion of the chapters and absence of repetition more than outweigh any possible objections. Mr. Souttar will no doubt wish to alter some of his statements in future editions. It seems unlikely, for instance, that he really believes that traumatic myositis ossificans only causes "a little stiffness," and that treatment is rarely required. Other matters of detail will be brought to his notice by his friends, and need not be specified here. Of greater importance is a criticism that may be levelled at Mr. Souttar's descriptions of the various forms of cancer and the means of diagnosing them. In our view any modern textbook of surgery should insist almost to the point of boredom on the necessity for diagnosing cancer before it possesses all the characters by which it is usually recognized. No student, for instance, would understand from a reading of Mr. Souttar's description of cancer of the breast that it is frequently seen in a stage when it shows perhaps only one of the features presented at a later stage, and further, that the prognosis depends so much on early diagnosis that mistakes must be made in the direction of suspecting a lesion which is not carcinoma. This is much the gravest criticism which we have to make of Mr. Souttar's book, for the importance of early diagnosis of cancer cannot possibly be exaggerated, and it should be drummed into the rising generation of medical students by the spoken and the written word until it becomes impossible for him to forget it.

If, however, Mr. Souttar's book has some defects of this kind they are only such as it shares with most others that are available. In many respects *The Art of Surgery* makes a real advance in the succession of textbooks, and we recommend it to all students, and to any practitioner who wishes to be abreast of the times.

[1] *The Art of Surgery.* By H. S. Souttar, D.M., M.Ch.Oxon., F.R.C.S.Eng. London: W. Heinemann (Medical Books) Ltd. 1929. (Cr. 4to, pp. 624; Illustrated. 30s. net.)

TWEEDY'S "PRACTICAL OBSTETRICS."

A SIXTH edition of Hastings Tweedy's *Practical Obstetrics*[2] has been recently published by the Oxford Medical Publications. This popular manual has been revised and largely rewritten by Dr. BETHEL SOLOMONS, who is now alone responsible for the text. As in the case of previous editions, the main consideration has been to present the methods so successfully practised in Dublin at the Rotunda Hospital, but the teaching of other schools has not been ignored. As was to be expected, the present Master of the Rotunda discusses his subject in a forcible, straightforward manner, which never leaves any room for doubting what line of treatment he recommends. The different problems of obstetrics are fairly presented, and the recommendations for dealing with them unequivocably stated, the wealth of Dr. Solomons's experience being sufficient guarantee of the practical utility of the advice given. All the chapters have been brought thoroughly up to date, and the results of the author's experience of some of the new methods of treatment of accidental haemorrhage and puerperal sepsis are clearly set forth. Dr. Solomons is a strong advocate of lower segment Caesarean section, but the difficulties of this operation for the less experienced operator are not minimized. A new chapter has been added on the use of x rays in obstetrics with appropriate illustrations. Apart from these the author has wisely chosen his illustrations from block drawings and diagrams which are without exception clear and to the point. The practical teaching of this book has always been its strong point, and Dr. Bethel Solomons has faithfully followed tradition by keeping on the same sound lines.

ANATOMY FOR STUDENTS.

As a technical achievement the *Pocket Atlas of Anatomy*[3] by PAUCHET and DUPRET is worthy of the highest commendation. Within the limits of so small a volume are contained 297 plates illustrating most regions of human anatomy. The plates consist of line drawings, in some cases coloured, which are remarkable at once for their simplicity, clarity, and general accuracy. Some of them also display a welcome spirit of originality, and illustrate dissections viewed from an unusual angle. An atlas of anatomy, to justify its production, must possess at least

[2] *Tweedy's Practical Obstetrics.* Edited and largely rewritten by Bethel Solomons, M.D., F.R.C.P.I., M.R.I.A. Sixth edition. Oxford Medical Publications. London: Milford, Oxford University Press. 1929. (Demy 8vo, pp. xii + 759; 294 figures. 25s. net.)

[3] *Pocket Atlas of Anatomy.* By Victor Pauchet and S. Dupret. Oxford Medical Publications. London: Milford, Oxford University Press. 1928 (4½ × 7½, pp. vi + 306; 297 plates. 12s. 6d. net.)

two attributes—technical skill in draughtsmanship and originality. The authors (of whom the second is the artist) may be congratulated on having fully met these two requirements. That this book will be popular among medical students we have no doubt, for already we have seen copies freely circulating around the dissecting room. In order that we may be in time, then, for the inevitable second edition, we would like now to make a few suggestions which may be worthy of consideration. We think the teeth should be represented as real structures and not as diagrams (plate 16); the hyoid bone of a young adult in which the several elements are not ankylosed might be used for plate 31; a female os coxae might with advantage be placed for comparison beside the male bone figured on plate 43; the lenticulo-optic arteries (which do not exist) might be omitted from plate 82; the floor of the fourth ventricle (plate 86) seems a little unusual, and the labels "fovea superior" and "colliculus facialis" point to the wrong structures; the size and importance of the inferior pancreatic artery is exaggerated in plate 183; and, lastly, more illustrations of the larynx would be welcome. The authors anticipate that this atlas will prove of use to candidates for examinations as they revise their knowledge in the omnibus or on the seats in the Luxembourg Gardens. We are confident that it will find an equivalent place among British students. We are certain that the student will find it vastly more profitable and more pleasant to revise his anatomy from an atlas such as this than from an unillustrated cramming book, which is nothing more than a closely written précis of one of the larger textbooks.

The title *A Shorter Anatomy*[4] might imply that Mr. E. WOLFF'S book deals systematically with human anatomy, but more briefly than in the standard textbooks. It must be pointed out, however, that this is not a systematic treatment of the subject, large tracts of anatomy and many important facts being omitted, so that the student should not imagine that here will be found all the information necessary for his requirements. It is rather a collection of anatomical notes, such as might form a basis for demonstrations in the dissecting room. Added to the descriptive accounts, Mr. Wolff has given abundant references to clinical applications which are of considerable value (why, by the way, is the geniculate branch of the obturator nerve always being blamed for referring pain to the knee-joint when both the hip and knee-joints are also freely supplied by fibres from the sacral plexus and from the femoral nerve?). Speaking generally, we cannot commend the text figures. They are often somewhat confused (in such illustrations as these the shading should be represented by as few lines as possible), and sometimes inaccurate—for example, the attachments of the pronator radii teres and supinator in Fig. 4, the relative size of the pituitary gland in Fig. 45, and the infra-orbital canal in Fig. 51. The descriptive accounts are for the most part clearly and concisely written, and the excellent printing makes them pleasant to read. We find, however, room for criticism in some of the statements, and especially those that embody ideas which are not now generally held. Thus, for instance, we do not believe that abduction or adduction is possible at the elbow-joint, that the semilunar cartilages are covered by true synovial membrane, that the stria of Gennari ends typically at the bottom of the sulcus lunatus, that the third nerve fibres directly innervate the frontalis and orbicularis oculi muscles, that any of the superior cerebral veins open into the lacunae laterales, that the thymus disappears at puberty, or that the levator ani is the remains of a tail-wagging muscle. The central connexions of the cranial nerves, especially the olfactory and auditory nerves, are dealt with rather cursorily, the account of the filtration angle of the eye is hardly accurate, and the description of the ciliary processes conveys no clear idea of their structure. Of misprints we have noted the following: descendius hypoglossi, p. 205; Vessalius, p. 254; aqueosis, p. 253; stomatata, p. 257; taenia (used as plural), p. 323, etc.; paradidymus, p. 376. Nevertheless, in spite of the defects mentioned, we feel grateful to the author for having produced this book. The attractive style in which it is written will do much to captivate the attention and the interest of the student, and the student who reads it cannot possibly fail to profit greatly thereby.

[4] *A Shorter Anatomy.* By E. Wolff, M.B., B.S.Lond., F.R.C.S.Eng. London: H. K. Lewis and Co., Ltd. 1928. (Demy 8vo, pp. viii + 451; 130 figures. 18s. net.)

INFECTIOUS DISEASES.

THE work on *Acute Infectious Diseases*[5] by Dr. JAY FRANK SCHAMBERG, the well-known dermatologist, and Dr. JOHN A. KOLMER, who is equally eminent as a pathologist, represents the second edition of the book entitled *Acute Contagious Diseases* by the late Dr. William M. Welch and Dr. Schamberg, published in 1905. The present edition has been enlarged by over one hundred pages and new illustrations, the additional matter being devoted to the consideration of infection and immunity in acute infectious diseases and diseases not discussed in the first edition, of which the principal are in order of importance, whooping-cough, cerebro-spinal meningitis, erysipelas, and mumps. Chapters have also been added on serum anaphylaxis and the prevention of diphtheria, while the numerous acquisitions to our knowledge that have accrued during the quarter of a century that has almost elapsed since the appearance of the first edition have for the most part received ample recognition. This applies particularly to recent work on immunity and vaccination and serum anaphylaxis, on which the junior editor is a well-recognized authority. A full account is given of the Dick and Schick tests, the recent methods of immunization against scarlet fever and diphtheria, the etiology and serum prophylaxis of measles, and the latest work on erysipelas and cerebro-spinal fever.

In a work which is generally so well up to date, we are surprised to find that in the paragraphs on prognosis in scarlet fever and diphtheria, the latest statistics of the Metropolitan Asylums Board hospitals to be quoted are those of 1894, when the case mortality for these diseases was more than six times its present figure. In the chapter on the treatment of diphtheria, the antiquated views on the value of alcohol and tincture of perchloride of iron which appeared in the first edition are retained, and far too much importance is attached to the employment of local measures. The retention of these passages is probably to be attributed to the fact that the authors, unlike the writers on acute infectious diseases in this country, are not in such close clinical contact with their patients as their transatlantic brethren. It is perhaps hypercritical to remark that the authors, like most English writers, do not appear to have realized that the "h" in "röteln" and "rotlauf" has been omitted by the Germans for the last thirty years, and that the French word for "spot" (p. 834), unlike that for "task," does not require a circumflex accent. The only important omission which we have been able to detect is the absence of any mention of the work on the histology of typhus fever by German investigators. The chief drawback to the book is its high price, and this is doubtless in part due to the inclusion of a large number of illustrations, many of which do not enlighten the reader. We refer particularly to those of measles, rubella, and serum rashes.

PSYCHIATRY.

DR. F. I. WERTHEIMER and Miss FLORENCE E. HESKETH are responsible for a monograph on *The Significance of the Physical Constitution in Mental Disease.*[6] As a result of the work of Kretschmer, studies of the relation between body-build and psychic types are being more and more prosecuted by psychiatrists, though, as the authors of this volume point out, this particular problem has interested physicians from the earliest times. In this research the writers have made use of both the method of simple observation and of exact measurement. They have paid

[5] *Acute Infectious Diseases.* By Jay Frank Schamberg, M.D., and John A. Kolmer, M.Sc., M.D., Dr.P.H. Second edition, thoroughly revised. London: H. Kimpton. 1928. (6 × 9¼, pp. xx + 888; 161 figures, 27 plates. 50s. net.)

[6] *The Significance of the Physical Constitution in Mental Disease.* By F. I. Wertheimer and Florence E. Hesketh. Medicine Monographs, vol. x. London: Baillière, Tindall and Cox; Baltimore: The Williams and Wilkins Company. (Med. 8vo, pp. xiv + 87; 30 figures. 11s. 6d. net.)

particular attention to methods of correlating "observation types" with so-called "constitutional indices"; and they have devised a new anthropometric index, based upon four simple measurements. It is evidently possible to recognize typical body forms from observations alone. The writers state that this process of recognition is a complicated one, an exact observation of certain details combined with a realization of the general impression of the individual *in toto*. Undoubtedly this general unison impression is very useful and important, and requires training and technique. It is interesting to note that the determination of the authors' constitutional index yields results that appear to stand in definite relation to the different body types that are based upon simple inspection. In general, the results of this study are confirmatory of the view that schizophrenic reaction types are predominantly associated with asthenic, athletic, or dysplastic habitus, and that cyclothymic reaction types are predominantly related to the pyknic and pyknoid habitus. This book may be recommended to students of psychiatry, and those who propose to follow up similar lines of investigation will find it indispensable.

Though a series of clinical lectures is often helpful to the student when published in book form, there do not appear to be so many volumes of this kind produced at the present time as formerly. For this reason we can recommend those who are commencing the study of mental disease to make themselves acquainted with a volume by Dr. WILLIAM A. WHITE entitled *Lectures in Psychiatry*.[7] The author is an eminent psychiatrist: he has a broad outlook and is an experienced teacher and writer. Following an introductory lecture dealing with general principles, in successive chapters are considered the situation psychoses, general paresis, mental deficiency, epilepsy, manic-depressive psychoses, involutional melancholia, paranoia, and dementia praecox—the subject-matter being included in twelve lectures.

NOTES ON BOOKS.

IN writing the fifth edition of his *Notes on Dental Anatomy and Physiology and Dental Histology*[8] Mr. WIDDOWSON has aimed at the full estate of an elementary textbook. Consequently new chapters have been added—on cytology and embryology—and in the compilation of the book full use has been made of the work of other authors, to whom due acknowledgements are made. The book is designed as a ready work of reference for the busy practitioner and a note-book for students, but the medical practitioner who dips into its 550 pages of letterpress and illustration may well be excused if he asks "What is the practical application of it all?" Every item dealt with is of fascinating interest to the scientist, but the dental curriculum is overloaded, and the busy practitioner will not gain much comfort from a discussion on the rival theories of tooth evolution. But if a man have leisure he will turn with pleasure to a book such as this—and he will be very critical. He will ask which view of enamel calcification the author really supports—that given on page 142 that young enamel is as highly calcified as adult enamel, or that on page 167 that the enamel in adult teeth is harder than that of young teeth? He will ask for an actual picture of such an important structure as the fibrous connective tissue basis of the matrix of unvascular dentine. He will like to have a plain statement as to whether anyone has ever seen a connexion between the dentinal tubules and the cement corpuscles. He will ask why horny teeth should not be considered analogous at any rate to enamel. He will wonder whether in truth either syphilis or struma accelerates eruption. And in a few places he will ask the author to remember he is no longer dealing with "potted pathology"—page 298 supplies an instance. And having exhausted his critical occasions he will acknowledge he has read a delightful survey of the wonders of the odontologist's world.

A compact and readable little volume entitled *A Handbook on Diabetes Mellitus and its Modern Treatment*[9] has been written by Dr. J. P. BOSE of the Calcutta School of Tropical Medicine and Hygiene. Though this book is mainly concerned with the treatment of diabetes now so prevalent in Bengal, yet it is admirably clear and complete. It would be useful to a practitioner anywhere in the world. Diabetes in India is typically seen in the wealthy and obese. Gluttony, ill-balanced diets, sedentary modes of life, and excessive mental work and worry are noted by the author as potent etiological factors. A general survey of the whole subject of the disease is given in pithy chapters, and there are two original contributions: the first is a new colorimetric method of estimating blood sugar, the second is a table for the calculation of a diabetic diet. Under basal conditions the author would give a diabetic 25 calories per kilo of body weight. Taking the calorie requirement of the patient as X numerically, then one-twelfth of X gives the daily amount of fat in grams, one-thirtieth the carbohydrate, and one-thirty-third the protein. The book is attractively printed and bound; there are full tables and charts of dietetic measures. An air of optimism is perceptible in almost every chapter.

In the second edition of *The Nurses' Handbook of Hygiene*,[10] by Dr. L. E. H. WHITBY, issued under the auspices of the Press Committee of the Middlesex Hospital, the sections on vitamins and food preservatives have been expanded and brought up to date, and the diagrams are no longer open to the criticism made in our review of the first edition (November 14th, 1925, p. 909) that the relation of their size to that of the objects represented is not stated. The work, which deals simply but scientifically with the fundamental principles of public health, is well adapted to the requirements of candidates for the examination of the General Nursing Council for England and Wales.

In his essay on epidemic diseases in ships,[11] which forms one of the contributions to the ninth Pettenkofer memorial volume, Dr. HANNS GLEITSMANN has collected evidence from epidemics in the German, Austrian, British, and Danish navies in favour of Pettenkofer's contention that infectious diseases were determined by the soil and not by microbic activity. It is shown that infectious diseases on ships, such as cholera, typhoid fever, cerebro-spinal meningitis, typhus, plague, small-pox, and scarlet fever, are most liable to occur in the port where an epidemic is prevalent and rapidly tend to die out after the ship has put to sea.

Eutychus, or the Future of the Pulpit,[12] by WINIFRED HOLTBY, in the To-day and To-morrow Series, is a clever dialogue between Archbishop Fénelon, to whose *Dialogues sur l'éloquence* it is suggested as an epilogue, representing the great ecclesiastical tradition of preaching, Anthony, the type of the modern superficial intelligentsia with the opinion that the Church in Western Europe has an archaeological future only, and Eutychus, the ordinary stupid man, who drops off to sleep during the dialogue.

[7] *Lectures in Psychiatry*. By William A. White, A.M., M.D. Nervous and Mental Disease Monograph Series, No. 51. New York and Washington: Nervous and Mental Disease Publishing Company. 1928. (Med. 8vo, pp. v + 167. 3 dollars.)

[8] *Notes on Dental Anatomy and Physiology and Dental Histology*. By T. W. Widdowson. Fifth edition. London: J. Bale, Sons, and Danielsson, Ltd. 1928. (Demy 8vo, pp. xvi + 538; 548 figures; 6 plates. 25s. net.)

[9] *A Handbook on Diabetes Mellitus and its Modern Treatment*. By J. P. Bose, M.B.Cal., F.C.S.Lond. Calcutta and Simla: Thacker, Spink and Co. 1928. (Cr. 8vo, pp. xvi + 192; 1 plate. Rs.5.)

[10] *The Nurses' Handbook of Hygiene*. By L. E. H. Whitby, M.D.Cantab., M.R.C.P.Lond., D.P.H. Second edition. London: Faber and Gwyer, Ltd., The Scientific Press. 1929. (Cr. 8vo, pp. xii + 153; 20 figures. 4s. 6d. net.)

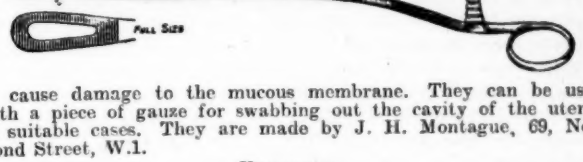
[11] *Die Seuchen im Seeverkehr*. Epidemiologische Betrachtungen. Von Dr. med. Hanns Gleitsmann. Munich: J. F. Lehmann. 1928. (7½ × 10½, pp. 40. M.3.)

[12] *Eutychus, or the Future of the Pulpit*. By Winifred Holtby. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1928. (Fcap. 8vo, pp. 142. 2s. 6d. net.)

PREPARATIONS AND APPLIANCES.

A MODIFIED SPONGE-HOLDING FORCEPS.

DR. REMINGTON HOBBS writes: For some time I have felt the need for a long and delicate pair of forceps in gynaecological work which would not obscure the line of vision. They are useful in removing pieces of retained products and polypi from the cervical canal, whereas similar forceps of larger size are apt



to cause damage to the mucous membrane. They can be used with a piece of gauze for swabbing out the cavity of the uterus in suitable cases. They are made by J. H. Montague, 69, New Bond Street, W.1.

KHAROPHEN.

Kharophen is the name under which Messrs. Burroughs Wellcome and Co. are putting on the market a tabloid preparation of the compound 3-amino-4-hydroxyphenyl arsinic acid. This organic arsenical has proved of value in the treatment of amoebic dysentery when given in doses of 4 grains (0.259 gram) twice a day for ten days. It is said to be superior to emetine in that it does not produce depression, and it is even stated to act as a haematinic and general tonic. The compound has also been used effectively in the treatment of yaws (framboesia)

MEDICAL RESEARCH COUNCIL.

ANNUAL REPORT.

(*Concluded from page 567.*)

II.

General Vitamin Studies.

Work by Professor Drummond at University College on the chemical nature of vitamin A as it occurs in various fish-liver oils has nearly been completed. It has now been shown that practically the whole of the vitamin fraction of cod-liver oil represented by the non-saponifiable portion can be separated into components in a chemically pure condition. From the purely chemical examination of the highly active concentrate from cod-liver oil and other fish oils it is probable that the vitamin constitutes much less than 1 per cent. of the whole material—that is, a ten-thousandth part of the original cod-liver oil. This work has been concurrent with an extensive investigation of the vitamin value of commercial preparations of cod-liver oil undertaken with the aid of a grant from the Empire Marketing Board. Other work by Professor Drummond suggests that the so-called vitamin B complex owes its action, not as now believed to two substances, but to four. At the Field Laboratories, Cambridge, Drs. L. J. Harris and T. Moore have found that large excess of cod-liver oil added to an otherwise satisfactory diet may in fact be injurious to the rat, and this study is being linked with observations on the beneficial effects of an increased allowance of the vitamin B complex. At King's College for Women Professor Mottram and Dr. Hartwell are investigating the relative values of brown and white bread in a diet arranged to imitate that of an agricultural labourer. Dr. Hartwell has also continued her work on the relations of vitamin B to lactation.

Dental Disease.

Dr. E. W. Fish has been investigating the minute structure of teeth, the circulation in them of lymph, and the relation of these to dental disease. Mrs. Mellanby has continued her researches at Sheffield into the structure of children's teeth, and the results, taken in conjunction with those of certain animal experiments, suggest that the fundamental cause of the prevalence of dental caries is a defect of nutrition. An important investigation has been started at Birmingham, where children in three institutions are receiving special additions to their ordinary diet with a view to determining the influence of these on the development of teeth and liability to dental caries. At the London Hospital Mr. J. R. Marrack has found that low calcium in the saliva is distinctly more common in patients with numerous carious teeth, and at Guy's Hospital Mr. A. Bulleid is investigating the possible role of anaerobic bacteria in apical infection of the teeth.

Cardio-Vascular and Excretory Systems.

Dr. J. C. Bramwell and Dr. R. Ellis took part in the studies made at Amsterdam of Olympic athletes, and in particular paid attention to the circulatory mechanism in the long-distance runners. At Cambridge Dr. G. V. Anrep is studying the coronary circulation in the heart by a method which indicates to what extent the cardiac contraction itself may favour or hinder the coronary circulation. Dr. A. A. Osman, at Guy's Hospital, continues his work on the treatment of nephritis by alkalis, whereby further evidence of the efficacy of alkalis in the treatment of anuria has been obtained, and some light has been thrown on the mode of action of alkalis in causing diuresis. With the help of Dr. H. G. Close he has found that the plasma bicarbonate content forms a useful means of differentiating between acute focal and acute diffuse nephritis and between the former and some other causes of haematuria. Dr. G. A. Harrison, at St. Bartholomew's Hospital, has investigated indican retention in the blood in cases of uraemia, but, while the cause of an obscure colour reaction has been elicited, no light has been shed on the causes of uraemia.

Nervous and Mental Disorders.

At Oxford Dr. D. Denny-Brown has continued his work on the problems of reflex posture, and has investigated some related problems of the structure of nerve endings in muscle with special regard to the innervation of muscle by the sympathetic nervous system. At the National Hospital, Queen Square, London, Dr. E. Blake Pritchard is making an experimental study of the knee-jerk by means of optical records under variations of stimulus and in different pathological conditions, and at the same hospital Dr. M. Critchley is working on certain nervous manifestations which occur in cerebral arterio-sclerosis. In the Scottish Asylums Research Laboratory Dr. F. E. Reynolds continues his investigations on the paths of infection of the brain, meninges, and venous blood sinuses from neighbouring inflammatory foci, and with Mr. Logan Turner he has studied three cases where the primary focus was in the accessory air sinuses. Dr. F. A. Pickworth in Birmingham has made a further investigation of the abnormal agglutinin reactions which occur in the insane, and at Cambridge Miss L. G. Fildes has completed her inquiry into the special psychological causes underlying the condition known as word-deafness and has also made an experimental study of the discriminative power of defective boys.

The Blood and Glands of Internal Secretion.

In Professor Barcroft's laboratory at Cambridge a collaborative examination has been made of the different methods of estimating the oxygen capacity of human blood with a view to elucidating a slight discrepancy between the results obtained by American and British workers. At Charing Cross Hospital Dr. A. B. Rosher has found that there is no experimental evidence of intravascular haemagglutination following the intravenous administration of horse serum. Dr. Stanley P. Davidson in Edinburgh has continued his study of various aspects of pernicious anaemia, and, in particular, has investigated the bacteriology of the gastro-intestinal contents. He finds no bacteria which are not normally present in healthy people, but, on the other hand, certain organisms, especially *B. welchii*, are present in a greater proportion in the faeces of cases of pernicious anaemia. At the Lister Institute Dr. V. Korenchevsky has continued his study of testicular hormones. The aim of the experiments is to use glands having the largest amount of the special secreting tissue, and at the same time devoid of generative tissue. Some direct evidence has been obtained to support the common theory that the degeneration of generative tissue in cryptorchid animals is chiefly due to the higher temperatures of the sexual glands within the abdomen than when descended to the external position. Dr. A. S. Parkes has progressed with his work at University College on the ovarian secretions. The corpus luteum has been shown to be essentially responsible for the characteristic changes of the post-ovulation period of the cycle, including the complete development of the mammary glands during pregnancy, a process in which the foetus has been shown to play no part. Further work on Graves's disease by Drs. Williamson and Pearse has led to the finding of a method by which the two secretions of the thyroid gland can be separated so that their biochemical, physiological, and clinical activities can be studied. The relation of Graves's disease to iodine metabolism has been investigated, and colloid secretion, which contains all the iodine, has been shown not to be responsible for the toxic factor in this disorder. Dr. R. D. Lawrence's work on diabetes and insulin has recently enabled him to show that the usually accepted quantitative relationship between insulin and glucose does not exist. The normal ratio of dosage of insulin to carbohydrate used up is found only to hold good up to a certain point, beyond which relatively small increments of insulin can enable the body to dispose of increasingly large amounts of carbohydrate. At Sheffield Dr. G. A. Clark has done some work which indicates that possibly the vagus nerve exercises a tonic inhibitory effect on insulin secretion.

Tuberculosis and other Infections.

Dr. A. Stanley Griffith, studying the immunizing value of the B.C.G. vaccine of Calmette and Guérin, while unable to confirm the work of Wilbert on the production of immunity to tuberculosis in monkeys, has been able to show that immunity can be produced in the calf by intravenous, subcutaneous, or oral administration of the

vaccine. Dr. J. W. S. Blacklock in Glasgow has studied twenty cases of fatal tuberculosis, bringing the total numbers in which the infecting organism has been isolated up to eighty-four. In primary pulmonary tuberculosis 96 per cent. of cases are due to the human type of organism. Work on haemolytic streptococci and the infection due to them has been continued under the supervision of a special committee, of which Sir Frederick Andrewes is chairman. A close correlation between a Dick-positive reaction and the subsequent development of puerperal sepsis was found among a hundred prospective mothers, and arrangements are being made to render cases immune to puerperal fever before labour. Dr. L. Colebrook has completed one phase of his work on the arsenical compounds in relation to the chemotherapy of streptococcal infections, and a careful clinical trial is now to be made of the influence of these compounds, principally derived from salvarsan. Study of some of the problems of Hodgkin's disease is being carried on at St. Bartholomew's Hospital under the terms of the Rose Bequest, and a combination of clinical and pathological workers is conducting investigations. The work of the Council on canine distemper, largely made possible by the *Field* Distemper Fund, has now reached a stage where the knowledge acquired is capable of being applied to the production of immunity. Trial of the methods has been made upon dogs kept under ordinary conditions, and wherever a clear comparison has been possible between inoculated and uninoculated dogs the results have been strikingly successful; evidence is lacking only as to the duration of the immunity conferred.

CANCER, RADIOLOGY, AND RADIOTHERAPY.

Studies of cancer at the National Institute by Dr. Gye have been continued. At St. Mark's Hospital Mr. W. B. Gabriel is following up and indexing the after-histories of cases of cancer of the rectum, and Dr. Cuthbert Dukes is grouping cases in which the rectum has been excised, according to the depth to which malignant cells have penetrated. Dr. Helen Chambers at Middlesex Hospital has made further investigations into the effects of tumour products on tumour growths. After tumours have been given a lethal dose of *x* rays *in vivo* it has been shown that the antigen causing immunity is absorbed in minute quantities spread over several days, and its isolation in concentrated solution is therefore a difficult problem. At Cambridge an investigation into the Shaw-Mackenzie serum test for cancer has been completed. The test was negative in certain cases of cancer, and positive in many other conditions. The biological effects of radiation are being studied by Dr. H. A. Cowell at King's College Hospital, and in particular he is investigating the effects of radiation upon patients with malignant disease to whom fluorescein has been administered.

VISION AND HEARING.

Under the direction of the Committee upon the Physiology of Vision research dealing with problems of the fighting services has been continued along with other investigations of more general interest. Work at Cambridge under Mr. F. C. Bartlett has been concerned with the visual perception of form and movement in the peripheral field of the retina, and in the same laboratory Dr. D. N. Buchanan has continued his investigations on flicker, which has also been the object of research at University College, London, where, under the direction of Dr. R. J. Lythgoe, the effect of light and of dark adaptation on the performance of certain tasks has been studied. All this work has obvious practical interest in relation to the driving of motor cars at night and to some special problems of industry. Dr. W. S. Duke-Elder and Mrs. Duke-Elder at the same College are continuing their work on the physiology and pathology of intraocular pressure. They have discovered that the vitreous humour plays an unexpectedly large part in the control of this pressure, and with Miss Adams a study of the calcium content of the lenses and the blood in cases of cataract has been completed. A second committee has been at work with analogous functions, but concerned with hearing.

PHYSIOLOGY, PATHOLOGY, BIOCHEMISTRY.

General researches in these subjects have been carried on at various centres during the year. At Leeds Dr. H. W. Davies has been investigating oxygen administration, and from a study of the effects of injections of oxygen upon the oxygen saturation of the arterial blood, he has shown that injection of oxygen does not relieve oxygen-want in human patients. At Glasgow Dr. Munro Cameron is examining the pathological basis of nervous affections of the oesophagus, with special reference to spasmodic conditions of its upper and lower ends. Ten fatal cases of cardiospasm have been examined, and it has been established that a degenerative lesion of the intermuscular nerve cells is usually associated with the clinical condition. Dr. R. A. Webb has been working with Professor Dean at Cambridge upon the precipitin reaction. Dr. L. E. H. Whitby, at Middlesex Hospital, has been investigating the bactericidal effect of radium in relation to fluorescence, and has found that beta rays are as strongly bactericidal as *x* rays and gamma rays. The investigation of two typhoid carriers in Glasgow by Dr. K. Guthrie has shown removal of the gall-bladder in intestinal carriers to be effective treatment. Mr. A. Wormall has shown that ultra-violet rays have a destructive action on the haemolytic power of serum *in vitro*. This action has been studied further, and the destruction is attributed to alterations in the protein components of the complement. Dr. William Robson is studying the part played by tryptophane in the animal organism.

ANAESTHETICS.

The Anaesthetic Committee has continued to collect information about the highly dangerous "late ether convulsions," but so far no adequate explanation has been forthcoming. During the year an inquiry was received from New Zealand as to an impression strongly held there by anaesthetists that ethers made in the British Empire are inferior in anaesthetic value to those originating in Germany and the United States. By suggesting certain tests the committee were able to convince the hospital authorities concerned that this impression has no foundation in fact. Certain research has also been undertaken with regard to the trial of "avertin" for rectal administration.

EPIDEMIOLOGY.

Work on this subject under the joint direction of Professors Topley and Greenwood has been continued, and the mouse population which has now been under continuous observation for eight years is being maintained by daily additions of normal mice, while other long-continued epidemics are being studied. It is hoped to reach a definite conclusion with regard to the importance of natural immunization as a factor in herd-immunity. Another subject which has been studied is the possibility of obtaining knowledge of the vital statistics of mice not deliberately exposed to infection.

STATISTICS.

Work under this heading covers a very wide field, for, in addition to special problems, the staff concerned with this subject is often called upon to study the results of other workers. The Statistical Committee also serves the Ministry of Health in the field of medical statistics. In this connexion one of the most important pieces of work in hand is the analysis of anthropometric data collected for a committee of the Board of Education presided over by Sir George Newman. During the past year Mr. Matthew Young has made a study of the racial significance of blood grouping, and the results seem to indicate that too much importance has been attached to blood group distribution as a criterion of racial classification.

INDUSTRIAL MEDICINE AND INDUSTRIAL FATIGUE.

Miscellaneous researches into industrial problems have been continued, and many of these are discussed at greater length in the annual report of the Industrial Fatigue Research Board. The present report mentions some work on miners' nystagmus, particularly in connexion with the illumination of mines, while the psychological aspect is to

be investigated under a scheme being prepared by Dr. Millais Culpin. A study of the sickness incidence in certain spinning mills is being undertaken with reference to the dusty atmosphere of certain rooms, while some of the problems of load carrying by dock and transport workers are receiving attention.

Concluding Notes.

In its last pages the report gives an account of the work done by holders of the travelling fellowships endowed by the Rockefeller Foundation, and records that these fellowships have been renewed for a third period of three years by the Foundation. The Council expresses its appreciation of the work done by Sir Hugh Anderson during the short period he served on the Council before his death, and records also the loss to the field of physiological research occasioned by the death of Professor Noël Paton. The Council, in conclusion, expresses its gratitude for financial aid it has received from public bodies and private benefactors, which has enabled it greatly to enrich its programme and has rendered certain aspects of its work possible.

THE MENTAL HOSPITAL OF TO-DAY.

Lecture by Sir C. Hubert Bond.

Sir C. Hubert Bond delivered a lecture to the National Council of Mental Hygiene on March 20th on "The mental hospital of to-day." He found some fault with this title because the treatment of mental patients and mental hospital administration generally were advancing so rapidly that no institution could be said to be the mental hospital of to-day. A plan for a new mental hospital in harmony with present-day requirements might be approved, but before the work was completed the general idea as to what a mental hospital should be would have gone on ahead. He disliked also the term "mental hospital." His personal preference was for the old word "asylum," which had quite a good connotation if one studied it, though he agreed that if mental hospitals could be spoken of simply as "hospitals" it would be better still. Other hospitals were not usually labelled according to the conditions they treated, and it would be much better to call a mental hospital after a saint or a locality, and to drop the adjective. In official documents the words "for mental disorder" might be retained, in small type, but it was injudicious to announce to the world and to prospective patients the exact nature of the hospital.

Mental and General Hospitals Compared.

Sir Hubert Bond went on to explore the differences between a mental hospital and a general hospital. If one had regard to the older mental hospitals established in the early nineteenth century it must be said that there was a vast difference, but he doubted whether there need be any great difference, and he considered that the two institutions were becoming much more similar. There was one necessary difference, due to the fact that general hospitals did not usually keep their patients for any long period, whereas many mental cases had to have institutional care, not in beds, for years; the ward provision in the two kinds of institutions must therefore be dissimilar. Only one general hospital in the country, so far as he was aware, had wards for mental cases—namely, Middlesex Hospital; the wards were small, but he hoped they would be enlarged. The modern general hospital, again, like the mental hospital, was more and more inclined to remove from the towns into the country, leaving a nucleus for emergency cases. He saw in the future the general hospital taking more the administrative pattern of the mental hospital, and the mental hospital shedding some of its ancient features. In one respect a mental hospital was more of a general hospital than a general hospital itself. The general hospital expressly excluded certain cases—fevers, for example, and, save in the one instance mentioned, mental cases. The mental hospital, on the other hand, had to provide for all cases of general illness among its mental patients. Whatever the illness from which a mental patient suffered, he could not be turned out of the institution.

Classification of Patients.

The new Middlesex County Mental Hospital and Colony at Shenley, a plan of which he exhibited, afforded Sir Hubert Bond an illustration of the general lay-out of the modern mental institution. Cases on admission were received at a central building, which was arranged so as to separate different classes of cases. The depressed and quiet patient, for example, saw and heard nothing whatever of the patient who was excited and delirious. Little villas or convalescent homes were provided in one part of the grounds for those who were recovering, and here there was no need for any patient to realize that he was not in an ordinary institution for the sick. About 30 per cent. of the patients were transferred to these homes. Another batch of patients came in, unhappily, to die swiftly; these were accommodated, on the county of Middlesex plan, in one or two most beautiful sick wards; when these were completed there would be no better hospital wards anywhere. Then there were chronic patients, not likely to recover. The lecturer was not willing to admit that these would never come to be considered recoverable, for mental medicine had yet to get to the bottom of these cases; but as things were at present, some 15 or 20 per cent. of those admitted remained for life. The detached wards for these cases had nothing about them which was forbidding, but much, indeed, that was pleasing. For the safety of the public certain cases in a mental hospital had to have their liberty restricted; the only alternative would be an overwhelming number of nurses, and he did not think the end would justify the means. It was here, in what were known as the closed buildings, that the "asylum atmosphere" was to be found, but the signs of restriction, in the modern hospital, were never obtrusive. Patients suffering from epilepsy, again, had to be provided for separately, so that others need not witness their distressing state. Then there were people who, although their mental illness was protracted, were very well behaved and fond of employment; here there was no necessity for the regime of closed buildings; the patients resided in pleasant cottages, needing no lock and key, except at night. The very existence of these cottages and the liberty enjoyed by the patients there had been the means of encouraging patients of another class—patients who, though not turbulent or excited, were not very pleasant, or obedient, or amenable to persuasion, and had to be separately accommodated—to pay attention to themselves so that they, too, might leave the closed part and enjoy the greater freedom of their fellows. These well-behaved mental patients, for whom no restrictive regime was necessary, and who liked to employ themselves, amounted, usually, to some 16 per cent. of the residents, though it depended very much on the spirit of the institution; he had known institutions in which the figure had been as high as 25 per cent. Altogether, the conditions in a mental hospital were quite unlike the harsh and depressing picture sometimes painted. The lecturer had found that many who wrote and spoke criticizing mental hospital administration had to admit, on being challenged, that they had never visited a mental hospital in their lives.

Hospital Amenities.

Sir Hubert Bond briefly sketched the various departments of the hospital, the administrative block, and the equipment for medical treatment, which last was the same as that existing in the best general hospitals to-day, and included the *x*-ray department, the hydrotherapeutic department, verandah provision for open-air treatment, and so forth. The accommodation of the nurses was an important point. He remembered the day when every nurse in a mental hospital slept actually in the wards; that system was rapidly disappearing, and the nurses were now housed in a detached home. Liberal provision was also made for

the entertainment and recreation of the patients—a necessary and economical form of treatment. Another important point was the decoration of the wards with flowers and pictures, and the arrangement of the gardens and grounds. No small part of the business of the medical superintendent was concerned with the occupation of the patients. When he himself had charge of a mental hospital the residents themselves made the furniture, did the upholstery, wove the cloth for garments, made the boots, the mats, the brushes for the whole establishment, and did all the printing and bookbinding.

At the conclusion of the lecture a few questions were asked. In reply to a question as to what happened to a patient after discharge, Sir Hubert Bond said that London in this respect was fortunate in having a very efficient Mental After-care Association; he had never known this body let a case down. He wished to see every county with its own after-care association on the London model.

On a question as to out-patient clinics, he said that these did undoubtedly result in a decrease of hospital admissions. The best organized of these out-patient clinics was that at the Radcliffe Infirmary, Oxford, and it was significant that Oxford was the only mental hospital in the country where the population was decreasing.

VOLUNTARY HOSPITALS AND THE LOCAL GOVERNMENT BILL.

HARVEIAN LECTURE BY DR. E. GRAHAM LITTLE.

AT a meeting of the Harveian Society held at Paddington Town Hall on March 14th, Dr. E. GRAHAM LITTLE, M.P., delivered the Harveian Lecture, taking for his subject the voluntary hospitals and the Local Government Bill.

After describing the bill as the most important measure in its bearings on medical service that the present generation had seen, and sketching its main provisions, by this time familiar, Dr. Graham Little pointed out that it authorized and even encouraged county and county borough councils to provide hospitals and maternity homes, which would in all probability compete with the voluntary hospitals already in existence. Amendments proposed in both Houses of Parliament to provide machinery for securing co-operation between these new hospitals and the old voluntary hospitals had been refused by the Government, and he considered it true to say that there was no real check provided by the bill to prevent competition. Furthermore, the retention by the Minister of Health of complete control of all medical (as of other) officers under the scheme implied the wider extension of departmental autocracy over the profession, already experienced under the National Health Insurance Act. The Minister of Health had made no secret of his desire to extend the health services in such a way as to foreshadow their nationalization. The change in the relationship between the Exchequer and the local bodies also meant a further extension of the power of the Ministry. Block grants were to be substituted for the percentage grants hitherto made to local bodies, and the Minister reserved complete control over such grants, to vary or modify them as he willed.

Dr. Graham Little admitted the necessity for further institutional provision than the voluntary hospitals in their present state of development were able to supply, but he questioned the means proposed to that end. The reason why the voluntary hospitals had proved unable to meet the demands upon them was simply their popularity. The prestige of these hospitals explained why it was that patients were willing to wait for admission to them rather than seek immediate admission to existing Poor Law hospitals. There was no guarantee that patients would not still prefer to wait for admission to the voluntary hospitals. Government departments could not create prestige or personnel. The more logical and economical way of adjusting the difficulty of the empty beds at the Poor Law hospitals and the waiting lists at the voluntary hospitals would seem to be the provision of beds at those institutions where the demand was greatest. Such provision could be made at a smaller cost than would be entailed by the staffing of new hospitals. Laboratories and special departments were already in existence at the voluntary hospitals, and the extra expenditure would be little more than the actual cost of providing new beds, with a slight addition for the increase of medical staff. But the Ministry of Health was determined upon a much more expensive and dubious experiment—that of encouraging the establishment of quite new hospitals—and no provision whatever had been made to prevent competition with existing institutions.

During the last decade the voluntary hospitals had become largely self-supporting institutions, and a great system of insurance for hospital service had developed, voluntary in character, but growing rapidly, and including quite new sections of the population. In these circumstances it was quite possible that the voluntary hospitals might elect to remain independent and continue as now, outside the orbit of the Ministry of Health, at any rate as regards management. They would probably continue to attract, thanks to the freedom and elasticity of the voluntary system, the services, medical and lay, of the best men and women of the time. Under modern conditions of the training of specialists it would be quite impossible to provide the new municipal hospitals with officers of the same status as those who staffed the voluntary hospitals without drawing upon the personnel of the latter.

Dr. Graham Little referred again to a scheme which he, with Mr. Walter Spencer, expounded in the *Times* fifteen months ago, and of which he spoke at the last Annual Representative Meeting. The scheme was, briefly, that in each area the voluntary hospital should take the lead, as its experience and prestige warranted, in the organizing of all the health services, and that a central advisory body should be constituted to guide and co-ordinate the services throughout the country, on which there should be representatives of the Ministry of Health and of the county councils, but with the representatives of the voluntary hospitals predominating. The nearer the new hospitals approached to the atmosphere and practice of the voluntary hospitals the more probable was their ultimate success in securing the confidence of patients, in maintaining economy and efficiency, and in gaining the enthusiastic co-operation of the medical profession.

ROYAL MEDICAL BENEVOLENT FUND.

SUBSCRIPTIONS are very urgently needed to enable the committee to meet the many calls for financial help which are made by these members of the medical profession, their widows, and dependants who are afflicted by poverty and want.

Each month, together with other applicants, there is more often than not a widow who comes for help, having been left destitute by the death of her husband; the amount the Fund is in a position to give is not adequate. Subscriptions and donations should be sent to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, Cavendish Square, W.1.

At the last meeting of the Case Committee of the Royal Medical Benevolent Fund forty-seven applications were considered, and forty-four grants were voted, amounting to £979 5s. The following is a summary of three cases:

Widow, aged 52, of M.R.C.S., L.R.C.P., whose husband died in February, 1929, has been left with £300; her annual income can only be £15. A few friends have clubbed together and have promised to give £60 yearly. The Fund voted £36.

Widow, aged 41, of M.R.C.S., L.R.C.P., whose husband died at the age of 56 in February, 1929. It is hoped that the practice will be sold for £1,750, the interest on which will be the widow's only income. There is a boy aged 9 to educate. The Fund voted a maintenance grant of £26; efforts will be made to find salaried employment for the widow, and help will be given for educating the boy.

Widow, aged 65, of L.R.C.P. and S. Was left destitute on the death of her husband; supported herself as companion to a lady, but has broken down in health, has had an operation, and is now a semi-invalid. Her annual income is £77. Fund voted £25.

The Royal Medical Benevolent Fund Guild still receives many applications for clothing, especially for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for second-hand clothes and household articles. The gifts should be sent to the Secretary of the Guild, 58, Great Marlborough Street, W.1.

British Medical Journal.

SATURDAY, MARCH 30TH, 1929.

FRACTURES OF THE ANKLE.

WE think it is a healthy sign that the treatment of fractures and the degree of success achieved in attempts to restore the injured parts *ad integrum* attract the increasing attention of surgeons. Particularly is this true as regards fractures of the lower ends of the bones of the leg and of the forearm involving the ankle-joint and wrist respectively. Any reduction in the efficiency of these joints means disaster for the working man and also a heavy charge on insurance funds. We recently commented on the good results obtained and statistics published by Messrs. Edwards and Clayton of the fracture department at King's College Hospital. The publication of this paper in our columns (January 12th, p. 61) was followed by one from Messrs. Grasby and Trick of Guy's Hospital (March 2nd, p. 391), and a fortnight ago Mr. Blundell Bankart contributed a valuable paper on the treatment of Colles's fracture (March 16th, p. 491), some letters in relation to which will be found at page 619. In our present issue (p. 585) we publish an article by Mr. Robert Ollerenshaw on the treatment of fractures involving the ankle-joint.

Such injuries as Pott's fracture have been frequently discussed, but there remains much to be desired in their routine treatment by the profession in general, and Mr. Ollerenshaw's contribution is welcome. As surgeon in charge of the orthopaedic department of the Salford Royal Hospital he has had good opportunities of acquiring experience, the results of which he communicated recently to the Manchester Surgical Society. Shortly, the result of an inquiry into 100 cases of ankle fracture of all kinds, including such severe injuries as fracture of both malleoli and of the astragalus, is that 89 returned to their *original* work, and that the average time of treatment of all the 100 cases was fourteen weeks, the extremes being eight weeks in the case of fracture of the external malleolus only and twenty-six weeks in that of marginal fracture. As these figures imply, the last-named type of fracture is the most disabling, while its existence may be overlooked and its treatment is difficult. The statistics of cure in the case of fracture of the external malleolus only are still better, for of 42 cases, 39, or more than 92 per cent., returned to their original work. As Mr. Ollerenshaw rightly points out, the statement "returned to work" is not a true indication of cure. A coal porter with a more or less disabled ankle might take up such work as driving a wagon, but if he returns to his original work of carrying two hundredweight of coal upon his back it is obvious that the cure is complete.

Radiographers of late have been able sometimes to hint to surgeons that they have not always appreciated the appearances on the *x*-ray plate or availed themselves thoroughly of the information it can give. Mr. Ollerenshaw is able to show that the report of the radiologist is not always infallible. In Fig. 1 of his paper he points out a gross subluxation of the astragalus from the tibio-fibular mortise in a radiogram on which the report was made of "no displacement." We do not wish to make much of such a case of carelessness, but mention it rather to enforce the teaching that in any cases of unilateral injury to a limb it should be an invariable rule that the sound member ought also to be *x*-rayed from an exactly corresponding point of view in order to provide a criterion of normality. Had this been done in the case in question it is not conceivable that the blunder could have been made. There seems no valid reason why, with proper teaching, every surgeon and every general practitioner who can obtain the help of *x* rays should not get a good result in the treatment of a Pott's fracture. The more severe and complicated injuries may call for special experience and skilled manipulation, and the correction of cases of malunion and old uncorrected displacement by open operation may well be left to surgeons with special experience. Such operations often call for the highest skill, the greatest experience, and the most well-balanced judgement. No routine rules for their performance can be laid down. Mr. Blundell Bankart, in his trenchant criticism of the treatment of Colles's fracture at a large teaching hospital, finds little on which to congratulate the surgeons in charge of these injuries at that school. Nevertheless it is a sign of grace that at such a school the importance of fractures of the wrist and their treatment is recognized in a way that would hardly have been probable before the war.

Such papers as this, and others to which we have referred, show that improvement has taken and is taking place, and we believe that the profession at large is aware of the need for improvement. When we compare Mr. Ollerenshaw's figures with those given by Clinton Dent little more than a score of years ago this encouraging fact is apparent. We believe and hope that the members of that admirable force the Metropolitan Police no longer have to leave the service because of Pott's fracture. All Mr. Ollerenshaw's "conclusions" are acceptable, but we would particularly lay stress on the last one—to the effect that "a fracture case, from the time of its arrival at hospital to the time of its discharge to work, should be under the supervision of one surgeon," and of one only.

THEORIES OF ENZYME ACTION.

SINCE the days of Pasteur problems of enzyme action have held the attention of biologists; indeed, though Pasteur himself was primarily interested in brewing and fermentation, he clearly realized the wide import of his observations. The years that have elapsed since his time have seen a tremendous accumulation of new facts concerning enzymes and their substrates, their source, and the conditions under which they act. To the pure organic chemist such observations must have proved a sore trial. To him cells and cell extracts often appeared simply as "messes"; yet they accomplished, at relatively low temperatures and close to the neutral point, reactions which he could himself bring about, if at all, only at high temperatures and with powerful reagents. It is not surprising that he was at first loath to admit the reality of the phenomena described by the biologists and the biochemists. It is clear, however, that these enzyme actions underlie the activity of living cells. The common foodstuffs can be oxidized in the laboratory only by drastic means. The cells deal with them at 37° C. and at reactions close to neutrality; and even cells removed from the living body may retain the power of so doing. It is by these oxidations that the cells live and work. No one who believes in a greater future for medicine than that offered by empiricism and opportunism can afford to neglect such phenomena.

A review of the subject such as that given in Schoen's *Problem of Fermentation*[1] makes it plain that few of the aspects studied so far have much direct relationship to the immediate needs of medicine. The French and the Germans, who have been most active in the field, following in Pasteur's footsteps, have confined most of their attention to micro-organisms. Many of the data so obtained have found immediate practical application in industry. Apart from tanning and brewing, the development of the use of micro-organisms for commercial synthetic chemistry is as recent as it is extensive and striking. Remote from medicine, however, as such work appears to be, it is tempting to think that, could we but follow the clues correctly, the chemical behaviour of these useful and harmless organisms might throw light on the activities of their pathogenic relatives which command so much of our attention.

The study of the activities of mammalian tissue enzymes, difficult as it is, has proved and is proving fruitful. Following the lead of Hopkins and Fletcher, Meyerhof has partly unravelled the cycle of chemical changes underlying muscular activity; clearly, his thought has been greatly influenced by the similarities between carbohydrate degradation brought about by the yeast cell and that which occurs in muscular contraction. The work of Harden and Young on the importance of phosphates in alcoholic fermentation has its counterpart in the work of the Embden school on "lactacidogen." These points, again, are well discussed by Schoen. Wieland, Warburg, and Thunberg on the Continent, and Hopkins, Keilin, and Onslow in England, have built up a great structure of knowledge concerning oxidation systems, both plant and animal. If no comprehensive picture is yet possible there are at least many fragments waiting to be pieced together. But apart from increased knowledge of chemical mechanisms, has any helpful conception of the general nature of enzyme action yet emerged? Does, for example, Emil Fischer's "lock and key" hypothesis still hold the field? With the striking specificity of enzyme action in mind, Fischer postulated that an enzyme was a molecule having a special configuration that would fit the molecule of substrate just as a key fits a lock. Clearly, any given enzyme could thus fit but few substrates. Like Ehrlich's theories of immunity, the hypothesis was built around the facts, and as facts accumulated it became more and more unwieldy. It presupposed the enzyme to be a definite chemical entity; other facts make it certain that its molecule must be of colloidal dimensions; yet we have to picture for a single liver cell no fewer than fifty different sets of such molecules. Quastel states that in *B. coli* the number of enzymes dealing only with oxidations would have to be at least fifty-six. Moreover, many of these enzymes must be specially devised, as Hopkins first pointed out, to cope with materials which the cell could never meet unless it suffered the misfortune of falling into the hands of a biochemist.

It seems that the old theory, having done wonderful service in co-ordinating knowledge and stimulating new work, has had its day. Can we put anything in its place? Quastel and his collaborators, in a series of papers, a summary of which has recently appeared in the *Journal of Hygiene*,[2] have put forward a theory that seems to explain many of the facts, and to provide an excellent starting place for further work. It is interesting that they have once more turned to the micro-organism; to them, however, the micro-organism is not only a living entity: it is a convenient source of the enzyme systems which they wish to study. For purposes of their analysis, they have commonly used "resting" bacteria. These, they explain, are washed suspensions of bacteria which are used under such conditions that they are for the most part "non-proliferating" or "resting" during the time of experiment. They are by no means necessarily dead. Some of their most interesting results, however, have been obtained by using organisms which are, "bacteriologically," dead. On the basis of their researches Quastel and his collaborators conceive that an enzyme is not so much a specific chemical compound as the centre of a particular and sharply localized set of physico-chemical conditions. They suggest that at some colloidal surfaces centres exist where the arrangement of molecules may serve to set up powerful electric fields of force. Such conditions in the inorganic realm are perfectly familiar to the physicist. Molecules having a certain configuration will be attracted and held by the fields of force at these centres. Of the molecules so attracted or adsorbed a certain proportion, having again a definite structure, will be so affected that an electron shift will occur, and they will pass into a condition which enables them very readily to undergo chemical change. This process Quastel terms "activation." Only certain molecules within the range of the field can be adsorbed, and of these molecules only some will be activated. The process is to this extent specific, but the conception differs widely from that of specificity in Fischer's sense. On this basis it has been possible to predict what molecules will be activated by any given system, and to verify the prediction.

To certain orthodox bacteriologists the notion of working with "resting" or non-proliferating bacteria seems to have been a stumbling-block. To them, apparently, bacteria must be either living and proliferating, or dead and unworthy of notice. Such a view would definitely hinder the progress of our studies of the biochemical nature of bacteria and other organisms, for it is clearly of the greatest importance to understand in chemical terms what happens to an organism when it is exposed to different conditions, quite independently of whether it survives the exposure or not. If this were not so it would seem reasonable to object to most of the work done on yeast or on excised tissues, on the ground that these may not be capable of further normal function.

[1] *The Problem of Fermentation.* By M. Schoen. With an introduction by Professor A. Fernbach. A monograph of the Institut Pasteur translated by H. Lloyd Hind, B.Sc., F.I.C., and revised and enlarged by the author. London: Chapman and Hall, Ltd. 1928. (Roy. 8vo, pp. xii + 211. 21s. net.)

[2] *Journal of Hygiene*, 1928, 28, p. 139.

TUBERCULOSIS AMONG PRINTERS.

THE method of statistical analysis might be expected to supply data on which could be based an explanation of the comparatively high death rate from tuberculosis among members of the printing trades. Certainly there is very small measure of agreement about the explanations that have proceeded from other methods of inquiry. Lead poisoning of a slow, chronic, insidious form, producing not true plumbism but a lowering of resistance to infection, has been inculpated on the ground that in the printing trade lead poisoning and tuberculosis go hand-in-hand, both being higher in the occupations with greatest exposure to lead, and both falling as cleanliness and good ventilation increase. Alternatively, it has been held that the excessive incidence is due to cramped quarters, preference for working in an inadequately ventilated atmosphere, and

massive infections. Occasionally stress is laid on the presence in the atmosphere of dust and carbon monoxide created by the printing processes, and a lack of personal cleanliness and regular habits among the workers. These various explanations have this in common, that they invoke the influence of noxious factors in the printer's environment. On the other hand, it has been suggested that the cause may lie in the recruitment by the industry of persons of poor physique, a view which, however, finds no support in an American report by Hoffmann,[1] who concludes that there is no evidence "sufficiently pronounced to be suggestive of men of a decidedly inferior physique seeking employment in the printing trades." The problem is complicated by the fact that while the death rates from tuberculosis are in every age group higher among printers than among the general population of occupied males, the death rates from all causes, in almost every age group, are definitely lower. A statistical inquiry recently conducted by Dr. A. B. Hill[2] on behalf of the Industrial Fatigue Research Board into the incidence of sickness both from tuberculosis and from all other causes among the different occupational groups within the industry, while not explaining the relatively high tuberculosis rates among printers, brings out certain differences between the occupational groups which suggest lines along which a solution may eventually be reached. Medical examination of apprentices entering the trade should determine whether the high morbidity incidence of mortality among compositors aged 16 to 19 years, as compared with that among machine workers in the same age group, is due to the recruitment of weaklings in the one occupation and of a more physically select class in the other. Should it be found, in fact, that between these groups there is equality of physique on entry, some evidence of the effect of environmental factors would be obtained if the medical examination were made, not only on entry, but at intervals during the whole apprenticeship period. Detailed correlation of the conditions existing in specific printing houses, with their morbidity experience, would provide additional data to the same end. Dr. Hill finds that relative to their experience in later life the printers have high sickness and disablement rates in the first years of insurance, and that in this age group they occupy their most unfavourable position when compared with the general insured population. In later groups, on the other hand, they are at a distinct advantage, having throughout insured life a short-period incapacity rate about three-quarters of that for the insured population, and from the age group 35 to 39 onward a long-period incapacity rate only four-fifths of that suffered by other workers. Comparison of the occupational groups points to the conclusion that compositors begin, and perhaps end, their working life with an unfavourable morbidity experience, but that for all the intervening period they have a distinct advantage over others in the printing trade, their only rivals being the bookbinders and rulers. Excessive morbidity figures observed among the printers in the 16 to 19 age group are accounted for in large part by the high incidence of nearly all diseases at these ages among compositors, the latter, indeed, being almost entirely responsible for the pronounced tuberculosis rate in this age group. Phthisis is distinctly high for machine printers of ages 40 to 59, and for warehousemen of the age group 30 to 39; among compositors the liability to phthisis extends up to the age of 30, and reappears in the age period 60 to 69. It is possible that the long period of relative immunity enjoyed by compositors may be due to the operation of unfavourable environmental conditions which, while eliminating the weaker members by death, permits the survival of the more physically fit who possess or can acquire an immunity to tuberculosis. On the other hand, whatever may be the environment, if the occupation attracts an undue percentage of weaklings they would probably be eliminated from the trade, not necessarily because of the conditions of their work, but because they are unfit to retain their health and work under any conditions.

[1] U.S. Bureau of Labour Statistics. No. 427. Washington, March, 1927.
[2] An Investigation into the Sickness Experience of Printers, with special reference to the incidence of tuberculosis. Medical Research Council Report No. 54. 1929. H.M. Stationery Office. 4s. 6d. net.

DOSAGE AND NOMENCLATURE OF DRY PREPARATIONS OF GLANDS.

GLANDULAR therapy is slowly but steadily increasing in importance as our knowledge increases concerning both the effects produced by the active principles, and also the methods by which these can be prepared in a stable form. One annoying source of confusion in glandular therapy is that there has been no generally recognized convention governing the measurement of the active substance contained in the preparations. Hence the strength of different preparations, as measured in terms of fresh gland, has varied considerably, and the confusion has been increased by the amounts of gland being expressed sometimes as weight of dried gland and sometimes as weight of fresh gland. For example, the term "1/2-grain tablet" applied to a preparation of thyroid may mean that the tablet contains 1/2 grain of dried thyroid, or it may mean that it contains the equivalent of 1/2 grain of fresh gland. This uncertainty sometimes results in patients receiving doses of gland very different in magnitude from what the prescriber intended, and it is a constant source of confusion when the results of glandular therapy reported by different authors are compared. The American Drug Manufacturers Association has now agreed upon a series of figures for the amount of fresh gland that a unit amount of preparation should represent, and also upon a standard nomenclature for these preparations. The following are examples of some of the agreed ratios and nomenclature:

Desiccated ovarian substance ...	1 : 6 of fresh ovarian gland.
Desiccated parathyroid substance	1 : 10 of fresh parathyroid gland.
Desiccated thyroid substance ...	1 : 5 of fresh thyroid gland.
Desiccated pituitary—	
Anterior lobe substance	1 : 5 of fresh pituitary anterior lobe.
Posterior lobe substance ...	1 : 6 of fresh pituitary posterior lobe.

If these conventions are generally adopted it will be a great convenience, for it will eliminate the unnecessary confusion that arises from the use of such terms as "thyroid extract," and also the uncertainty produced by such a term as "1/2 grain of thyroid."

LEPROSY IN THE BRITISH EMPIRE.

IN its annual report for 1928 the committee of the British Empire Leprosy Relief Association reaffirms the belief that, if the plans which are now being advocated and put into operation in many parts of the Empire can be pushed forward with real determination, there is a possibility of abolishing this disease in many areas within the next thirty years or so. The work of the association is extending, and covers a variety of activities, some of which were described in our issue of June 23rd, 1928 (p. 1071). A new development is illustrated by the announcement that in Fiji nearly 1,000 trees which yield the oils used in the treatment of leprosy are now being grown from seed supplied by the association. It has been recognized that great advantages will accrue if the hydnocarpus oil can be obtained locally wherever it is used, and efforts of this kind are therefore being made in all parts of the Empire where leprosy work is being carried on. The anti-leprosy campaign in India continues to be pushed forward vigorously under the Indian Council of the Leprosy Relief Association, which

at the instance of Lord Reading, when he was Viceroy, raised a fund of over £160,000 for this purpose. Branches of the association have been formed in many countries, and, during the year under review, the list of grants for enlarging the existing treatment centres and opening new ones shows a total of nearly £4,000. Regular supplies of the most effective drugs are being sent out to these centres, together with other necessary supplies. The association publishes a quarterly journal entitled *Leprosy Notes*, to which several references have been made in our columns.

B.C.G.

THE subject of pre-immunization of infants against tuberculosis by means of the Bacillus Calmette-Guérin continues to occupy the attention of the Académie de Médecine in Paris. Our readers may be reminded that Professor Calmette asserts that a virulent strain of bovine tubercle, attenuated by cultivation on a glycerinated bile medium, not only protects calves from infection with tuberculosis when injected under the skin, but also immunizes infants to the disease if administered by the mouth within ten days of birth. During 1928 a violent, if somewhat unconvincing, attack on Professor Calmette's assertions was carried on by Professor J. Lignières, a veterinary expert, references to which were made in these columns on May 26th (p. 909), June 23rd (p. 1077), and November 24th (p. 950). This attempt at vaccination against tuberculosis has been practised extensively in several parts of Europe, and in one of the Balkan countries the infants of whole communities have received doses of B.C.G. Nevertheless grave doubt has been cast upon Professor Calmette's use of statistics, notably by Professor Major Greenwood in the *British Medical Journal* of May 12th, 1928 (p. 793). At the session of the Académie de Médecine on December 18th last Professor Lignières returned to the charge with more orderly argument, designed to prove that the immunity conferred by B.C.G. is only relative and transitory. He contended also that the vaccination of healthy infants not exposed to the contagion of tuberculosis is not only unjustifiable, but may involve danger to the health of the infants. In the course of his communication Professor Lignières referred to recent experimental work with B.C.G. undertaken in Canada by Mr. E. A. Watson, in collaboration with Mr. C. W. McIntosh and Mr. H. Konst. These researches on B.C.G. and experimental vaccination against tuberculosis were conducted in the research laboratories of the Department of Agriculture, Hull, Quebec. They began shortly after the publication of Professor Calmette's work in 1924, and were directed first to the question of the pathogenicity of B.C.G. Of 134 guinea-pigs injected, 30 were found on death or slaughter to have tuberculous lesions, while in 12 there was extensive caseating generalized tuberculosis. As the authors were convinced that they could eliminate any question of spontaneous or naturally acquired tuberculosis in their guinea-pigs, and were equally confident that contamination of the B.C.G. cultures they used was impossible, they came to the conclusions, from their three and a half years' work, that B.C.G. had not been entirely deprived of virulence; that virulence was a *latent* property of B.C.G., requiring some unusual stimulus, and especially time to awaken it to activity; and that it was capable of causing in guinea-pigs, after a long period of infection and tolerance, a progressive and fatal tuberculosis, which was transferable from animal to animal in serial passage. The second part of the report of the Canadian investigators deals with experiments involving the vaccination of some seventeen calves with B.C.G. An attempt was made to reproduce conditions similar to those of the farm at Gruville, near Fécamp (Seine-Inférieure), where Professors Calmette and Guérin claimed great success for their method. But the Canadian animals were in a more favoured position in that they were drawn from tuberculosis-free herds. Yet all the seventeen animals—fourteen vaccinated and three used as controls—were found when killed to contain tuberculous lesions. The calves, after vaccination, were fed with the milk of tuberculous or suspected cows, as was done at Gruville; but it is noted that since 1927 Professors Calmette and Guérin have introduced an important modification of their methods, in that they now recommend that for thirty days after vaccination the animals should be fed only with boiled milk. The investigators are at present undertaking a series of experiments under the new conditions. It would seem, therefore, that the authors of the report, although anticipating severe criticisms of their experiments, are right in their view that B.C.G. vaccination is still in the experimental stage, and that its innocuousness and its efficiency are both open to question.

J. J. WATERSTON: A MAN BORN OUT OF HIS TIME.

J. J. WATERSTON, born in Edinburgh in 1811 and educated in mathematics and physics under Sir John Leslie, at the age of 21 came up to London to train as a civil engineer. Having qualified, he sought for work that would enable him to follow his hobby—pure science. The post of naval instructor to the East India Company's cadets answered his purpose, "giving him leisure and no anxiety, care, or responsibility, and at the same time enabling him to lay up a little for old age." The rest of his life was devoted mainly to scientific thought. In his first serious adventure—namely, an attempt to express mental phenomena in terms of physical changes—he perceived that the excessive refinement of structural adaptations exhibited by living organisms must depend ultimately on molecular adaptations. To molecules, therefore, he turned his attention, since he felt that, in whatever way the phenomena of nature were examined, molecularity was the grand terminus to which all investigations tended. Thus he was led to the study of molecular physics, and in particular to the physics of gases; and in this branch he exhibited a penetration which marks him out as one of the greatest thinkers of the nineteenth century. He discovered that the physical laws common to all gases and vapours could be brought under one broad generalization on the assumption that a gas consists of molecules travelling with enormous rapidity in every possible direction. A carefully written paper, in which this dynamical theory of gases and of heat and temperature was formulated with great precision and clearness, was sent in to the Royal Society in the year 1845—and rejected. The two referees appointed to examine it pronounced it unworthy of publication, one of them expressing the opinion that it was "nothing but nonsense, unfit even for reading before the Society." In itself the incident may be considered trivial, but its practical effect was permanently to eclipse Waterston's splendid generalization. By the rules of the Society publication of the paper elsewhere was prohibited, and although Waterston made some attempts to draw attention to the subject, his efforts were without effect. The discovery was made afresh by other men some fifteen years later, and before the end of the century the dynamical theory had become a commonplace in ordinary textbooks. The incident has a pleasant sequel. A few years after Waterston's death Lord Rayleigh discovered the now celebrated paper in the archives of the Royal Society, and published it in the *Philosophical Transactions* (1892), with a generous appreciation of Waterston's work; and recently Professor J. S. Haldane has edited the collected works,[1] prefaced by an interesting

[1] *The Collected Scientific Papers of John James Waterston.* Edited, with a biography, by J. S. Haldane, M.D., LL.D., F.R.S. Edinburgh and London: Oliver and Boyd. 1928. (Med. 8vo, pp. lxvii + 709; illustrated. 25s. net.)

biography of Waterston, whom he actually ranks highest in the brilliant group of physicists turned out in the early part of the last century by the Scottish universities, including such men as Brewster, Forbes, Thomas Graham, Andrews, Rankine, Kelvin, Clerk Maxwell, Tait, and Balfour Stewart.

TENDENCIES OF MEDICAL EDUCATION IN AMERICA.

THE transition from individualism and *laissez-faire* to communal interference and even control, effected in this country during the middle of the nineteenth century, has had its counterpart in the United States during the last fifty years. As in England so in America, this evolution has not been achieved without considerable changes in social theory—changes, moreover, which have not been confined merely to the domains of politics and economics, but have invaded that synthesis of ideas and beliefs and aspirations collectively known as the spirit of the age. When economic life was dominated by *laissez-faire* so were other institutions, so even was ethics. The gradual supersession of individualism in industry, the revolution which began with factory legislation and moved irrevocably to trusts and rationalization, has been accompanied by a transformation not only in political theory, but by a corresponding change in the structure of nearly all social institutions. In America the most striking changes have been effected in medical education. William Low Bryan, president of Indiana University, writing in the *Journal of the Association of American Medical Colleges*, states that in the past fifty years America has seen the substitution of extreme licence in medical education by the other extreme of social control. As recently as twenty-five years ago America swarmed with medical schools, each autonomous and determining its own course of study and standard of qualification. Many of these schools were fraudulent and unable to give proper training for medical practice. Then, under the inspiration of the American Medical Association, came the passing of *laissez-faire*; schools were inspected with relentless thoroughness, black lists were published, and the weaker schools perished by the score. Within an astonishingly short time so extreme a revolution has been wrought in medical education that there are now signs of a reaction towards the old individualism. In other educational institutions, in the colleges of arts and sciences, this reaction is already an accomplished fact; daring educational experiments are being made, and here and there students are immune from strict prescription in their course of study. In Indiana the non-medical student is free of all rules except that he must not shoot a professor; Mr. Bryan does not state if this rule is rigidly enforced. Significant of the present-day tendency—the tendency perhaps to blend what is best in social organization with a healthy individualism—is Mr. Bryan's peroration. "Across the path of every man," he says, "are the traffic cop, the health officer, and the rest of the police. What is infinitely more important, across the path of the youth are the schools and licensing boards which allow him or forbid him to make his living at his chosen profession. . . . Our task, and if necessary our fight, is to keep the school and all standardizing agencies in continuous living adaptation to the needs of man."

BRITISH JOURNAL OF UROLOGY.

A WELCOME and important venture in medical journalism is the publication, by Messrs. Constable and Co. Ltd., of the first issue of the *British Journal of Urology*,[1] a new quarterly periodical, edited by Mr. Frank Kidd, M.Ch., F.R.C.S., and Mr. H. P. Winsbury White, F.R.C.S., with the assistance of an editorial committee of British urologists. This is the second periodical in English devoted to urology, the first being the *Journal of Urology*, founded in America ten years ago. In a letter which appeared in our columns on March 2nd (p. 421) announcing the forthcoming publication of the new journal, it was pointed out that, although there has been an active British section taking part in the congresses of the International Society of Urology, and the council of the Royal Society of Medicine has thought fit to establish the subject of urology as a separate section, and not as a subsection of surgery—thereby showing that urology was held to be entitled to differentiation as a separate subject for study—"there is nowadays such abundance of special work being done that can only find a voice if it can be given the additional outlet of a journal specially devoted to the subject." The editors of the *British Journal of Urology* hope that not only will the new publication unite in closer harmony and lend added prestige to the work of the ever-increasing number of urological workers in the British Empire, but that it will serve as a link between urologists in England and their colleagues in other countries. In each number, for the help of visitors, will be published a list of the chief British urological clinics, and the editors hope further, by the publication of articles from American writers, to fulfil the great responsibility that rests on all scientific workers to strive for comity among the nations and an age of peace. The present issue contains several original articles, records of interesting cases, biochemical notes, urological hints for practitioners, abstracts from current literature, and an index to that literature conceived on modern lines. A great deal of the material is of interest as much to the general practitioner as to the specialist in urology.

[1] Price 6s. Annual subscription 20s., post free.

INFLUENZA.

IN the week ending March 16th there was a substantial decrease in the mortality attributed to influenza, as well as in the incidence of notified pneumonia. In the great towns the deaths assigned to influenza fell from 2,127 to 1,552, and in England and Wales the number of notifications of primary pneumonia decreased from 5,818 to 4,897. Some Midland cities—for example, Nottingham and Derby—and some cities of Yorkshire—for example, Bradford—had more deaths from influenza than in the previous week, but in most the maximum was reached earlier. The West Midland area, where both notification and death rates were highest in the previous week, still suffered greatly. The rate for deaths from influenza (based on towns only) has fallen in the West Midlands from 234 per million to 171, and the notification rate of pneumonia from 302.7 to 263.1 (by a slip of the pen these rates were erroneously stated last week to be per 100,000 instead of per million). In the south-western area and in Wales the notification rates of pneumonia were still increasing last week, but were on a relatively low level. On the whole, although no doubt mortality will continue to be abnormally great for some weeks, there is sufficient evidence to justify the belief that a general decline has now set in. The recrudescence has been the most serious since the great pandemic, and has taken a heavy toll at ages beyond middle life.

THE PRINCE OF WALES, President of King Edward's Hospital Fund for London, has appointed Lord Dawson of Penn, G.C.V.O., to be a member of the General Council of the Fund.

SIR BERKELEY MOYNIHAN, Bt., upon whom the King has conferred the dignity of a Baron of the United Kingdom, has adopted the style and title of Baron Moynihan of Leeds in the County of York.

DERMATOLOGY AND GENERAL MEDICINE.

THIRD LETTSOMIAN LECTURE BY DR. H. W. BARBER.

IN his third and concluding Lettsomian Lecture[1] delivered to the Medical Society of London on March 22nd, Dr. H. WORDSWORTH BARBER said that in previous lectures he had emphasized the close relationship existing between the skin and the sympathetic nervous system and ductless glands, and he proposed in this lecture to carry the consideration forward, in the first place, into that group of disorders to which Freeman had given the name of "toxic idiopathies," and, in the second place, into a trio of closely related cutaneous conditions—namely, alopecia areata, vitiligo, and scleroderma.

"*Toxic Idiopathies.*"

In speaking of these he called attention to the regrettable tendency which still existed of referring to them as if they were diseases *sui generis*. They included a number of cutaneous, subcutaneous, respiratory, gastro-intestinal, and nervous conditions—for example, in the cutaneous group, urticaria, true infantile eczema, certain forms of eczema occurring after infancy, and some forms of pruritus and prurigo; in the respiratory group, hay fever; in the gastro-intestinal group, certain forms of vomiting and diarrhoea; in the nervous group, migraine. He adopted Freeman's term "toxic idiopathies" because it conveniently indicated their toxic origin and implied idiosyncrasy. By idiosyncrasy he meant that certain persons had an inborn tendency to develop sensitiveness to one or more foreign substances, though idiosyncrasy was a relative term of widely varying incidence. Dr. Barber gave several illustrations of such sensitiveness, and among other observations mentioned that all those who constantly handled salts of nickel sooner or later suffered from nickel dermatitis, showing that the liability to become sensitized by contact with certain substances was found in so great a number of persons that it could not be attributed to individual idiosyncrasy. On the other hand, only a relatively small proportion of those who handled primula became sensitized, and there was often a familial idiosyncrasy towards this plant.

Various observations went to show that the toxic idiopathies, although often familial and hereditary, might nevertheless be regarded as allergic in nature. There was a type of person whose life-history might be said to be "one damned idiopathy after another," though such extreme cases were relatively uncommon. One particular symptom might be traced through several generations, but more often the affected members of the same family manifested different symptoms. Moreover, there was every gradation, from these rare cases of hypersensitiveness to various antigens, with multiple symptoms, down to the cases which showed one symptom only. Probably what was inherited was a disordered balance in the make-up of the endocrine autonomic system on which this tendency depended. A perfectly normal person, with no inherited predisposition, might under stress of an acute or chronic infection or a severe emotional shock develop symptoms of such disturbance with, for the first time in his life, one or more toxic idiopathies. The lecturer had seen asthma, for example, after acute infections or shock. He thought the toxic idiopathies might justifiably be considered as allergic reactions, and the cutaneous manifestations compared with eruptions such as the tuberculides and trichophytides.

Factors Predisposing to the Sensitized State.

Among the toxic idiopathies some cases were met with—for example, hay fever due to a particular pollen, or urticaria from some specific food substance—which were constants, the skin giving a specific reaction, and the whole phenomena being capable of reduction to a relatively simple physiological experiment; but in many other cases no such specific sensitiveness could be found. It was known that the urticarial wheal was provoked by a histamine-like substance or by histamine itself in the skin. Such a response might follow in certain persons merely from stroking the skin; in others from contact of an antigen with sensitized skin cells. Presumably it was a local defensive mechanism. But how was so-called psychogenic urticaria to be explained? One patient consulted him for genuine attacks of urticaria occurring whenever he was confronted with an important business appointment or the prospect of meeting strangers socially. Was it to be supposed that in emotion or anxiety there was a liberation of histamine? In practically all the toxic idiopathies the anxiety state alone might provoke the paroxysms.

The known factors predisposing to the manifestation of the sensitized state were: (1) sensitizing with foreign substances; (2) peripheral irritation; (3) psychical stimuli. The presence of a so-called reflex source of irritation might be of great importance, and was often forgotten. In asthma it was well known that a nasal abnormality might be the provoking cause of the attacks; similarly an overloaded stomach or exposure to strong sunlight might excite the asthmatic paroxysm. Eyestrain, a painful tooth, a misplaced uterus, might provoke disproportionate symptoms of sympathetic disturbance. Those who suffered from the toxic idiopathies, as Freeman pointed out, fell into the hands of different specialists in turn. These patients more than others provided a handle to the accusation against the specialists, and demanded from their consultants a range of knowledge wider than was usually to be expected. In addition to the three factors just mentioned there was a fourth, namely, the metabolic factor, and the lecturer had something to say on the investigations into cyclical changes and on the metabolic restoration following an alteration of environment.

Alopecia Areata, Vitiligo, and Scleroderma.

Dr. Barber turned next to the trio of related conditions already mentioned—alopecia areata, vitiligo, and scleroderma. The literature regarding these conditions, he said, was enormous, but the involvement of the autonomic nervous system was apparent from the experimental and clinical observations. He contented himself with some comparisons between the three conditions and with a brief treatment of each in turn. All three, for example, might occur in a localized and in a generalized form. He discussed the changes which constituted the life-history of a patch of alopecia areata, and particularly emphasized the redistribution of the pigment whereby the part near the root of the hair became depigmented, and, secondly, the atrophy of the hair, which did not occur after parasitic infections such as ringworm. The real significance of the "exclamation mark" hairs in alopecia areata was that, apart from this condition, they were met with, so far as he knew, only on depilation by x rays and on the internal administration of thallium acetate. In the etiology of alopecia areata there was the following significant fact: that two at least of the factors which he had mentioned as predisposing to the toxic idiopathies came into play—namely, peripheral irritation and psychical stimuli. There was general agreement as to the importance of the psychical factor in many patients with alopecia areata, and numerous cases had been recorded in which a definite shock preceded its onset. One of his patients had three separate attacks, each one immediately after the death of a relative.

In vitiligo the same predisposing factors were found clinically—namely, peripheral irritation and psychical stimuli. One feature of vitiligo of great interest was its association with pigmented moles, but the discussion of the full significance of this would involve the origin of naevi. He quoted cases, one following a nervous breakdown, which supported the idea of the sympathetic nerve origin of vitiligo. He also referred in the same way, but more briefly, to scleroderma, mentioning its frequent association with thyroid disorders and its occurrence both in Graves's disease and in myxoedema.

In conclusion, Dr. Barber said that he had tried to emphasize the importance of the skin as a vital organ both in health and disease. The appreciation of this importance was gradually gaining ground, but ignorance of the most elementary principles of the etiology and pathology of the skin was widespread. It seemed to him that the student might profitably spend more time in studying the changes

[1] The first and second lectures were reported in the *British Medical Journal* of March 2nd (p. 412) and March 16th (p. 512) respectively.

in the skin and mucous membrane indicative of metabolic changes or the beginnings of disease, and be excused the study of much less relevant matter.

Dr. PARKES WEBER, in proposing a vote of thanks to the lecturer, said that general practitioners were conspicuous, in England at any rate, for their carelessness with regard to the dermatoses, though they had great responsibility thrown upon them in the certification of cases. Dr. HALDIN-DAVIS, in seconding, said that dermatology had been honoured in the choice which the society had made for its Lettsomian lecturer, who had ably demonstrated, what was sometimes forgotten by the physician, and even by the dermatologist himself, that dermatology was a branch of general medicine.

England and Wales.

Royal Sanitary Institute Dinner.

THE annual dinner of the Royal Sanitary Institute was held at the Hotel Metropole on March 21st. The Duke of Northumberland, K.G., presided over a large and distinguished company, which included representatives of Government departments, the services, and medical bodies. Sir John Rose Bradford, P.R.C.P., in submitting the toast of "The Public Health," said that the present was a time, if rightly used, of great promise to public health and to the future of medicine. The Local Government Bill, then in its final stages in the House of Lords, was of supreme importance from that point of view. With regard to the future of the voluntary hospitals he himself had no fear. He did not believe that the British public would tolerate the disappearance of such institutions. While it was true that if the voluntary hospitals disappeared expenditure would be increased by millions, the monetary loss would be small compared with the other losses involved. It must always be kept in mind that the standard of medical treatment, the advance of medical knowledge, and the training of doctors and nurses were mainly due to the voluntary hospitals. The experience and the spirit of the voluntary hospitals must be not only preserved but extended to, and incorporated with, the other institutions with which the present legislation primarily dealt. Sir Arthur Robinson, Secretary of the Ministry of Health, said that he knew the Minister would be ready to adopt as his own every word that Sir John Rose Bradford had said with regard to the voluntary hospitals. He went on to say, after a brief review of recent progress in public health, that, while it was often necessary to dilute the ideal with the practical, the Ministry in the course of years, and very largely owing to the inspiring lead of the present Minister, had come appreciably nearer to one of its ideals with the passing of the Local Government Bill, which touched not only public health, but nearly every element in local government administration. That measure gave to the Ministry, the local authorities, voluntary associations, and the medical profession magnificent opportunities. Actually as it stood it was a great public measure, and potentially it was a still greater one. He could promise that, so far as the Ministry was concerned, there would be a continuance in the well-tried way of partnership with the local authorities and their staffs, and with the medical profession. The toast of "The Royal Sanitary Institute" was proposed by Sir Ewen Maclean, President of the British Medical Association. After touching on the value and scope of the Institute, he went on to show that, in spite of a certain impression which might have been gained from Sir John Rose Bradford's remarks, the financial factor had to be taken seriously into consideration in connexion with the voluntary hospital system. From certain investigations he had carried out he found that for £50,000 put into a voluntary hospital, value to the extent of £1,500,000 per year was returned to the community; at a moderate computation he valued the services of the honorary staff at £350,000 annually. Sir Ewen Maclean added that there was one man who had to be taken into account in all schemes of reconstruction touching the public health—namely, the general practitioner. Any scheme which was so foolishly devised as not to utilize the general practitioner's knowledge and experience was doomed from the first to a severe handicap. He hoped the general practitioner side of the question would be taken into account. The Duke of Northumberland, in responding, referred to the great progress in sanitary science which had taken place during the history of the Institute. The great duty to which the Institute was committed was the education of the citizens in the laws of sanitation. As the science of sanitation improved, multitudes were kept alive who in former times would have been carried off by disease. This in itself raised new problems which would have to be solved before many years had elapsed, and yet another problem would arise with the increasing restrictions which the improvement in sanitation imposed upon the liberty of the subject. But the Institute could not be wrong in pursuing its educative work. Professor Bostock Hill, chairman of council of the Institute, proposed the health of "The Guests," to which Sir Humphry Rolleston, Bt., and Sir Holburt Waring briefly replied.

Extension of University College Hospital.

Prince George presided over the annual meeting of the Corporation of University College Hospital on March 21st, when Sir Herbert Samuelson, chairman of the general committee and treasurer, presented the reports and accounts of the hospital. Sir Herbert said that the past year marked the first stage in the extension scheme initiated in 1922; with the completion of the reconstruction of the main hospital buildings the full complement of 529 beds became available. The Rockefeller Foundation had given a sum of approximately £31,000 to build a new preliminary training school for nurses, and it was hoped that the building would be completed within the next twelve months. The number of in-patients treated during 1928 was 7,753, as against 6,580 in 1927; the out-patients' attendance figure was 258,142, comparing with 247,786 in the preceding year. The hospital was still seriously handicapped by having insufficient supplies of radium at its disposal; although the generous gift of £50,000 to the King's Fund by Sir Otto Beit for the purchase of radium for loan to hospitals would temporarily relieve the situation, the demand for further supplies would soon become pressing. It was hoped that Sir Otto Beit's fine example would evoke other benefactions of a similar nature. Sir Herbert Samuelson referred to the fact that negotiations were in progress between the London County Council and representatives of the voluntary hospitals in London regarding the public health services and the provision of more adequate hospital accommodation; he expressed the hope that the voluntary hospitals, while maintaining unimpaired their traditional heritage, would be assigned a definite and responsible place in the public health service of the country. The income of the hospital for the year was £110,664, an advance of £21,527 on that of the preceding year. The increase reflected the result of a special appeal inaugurated by the Duke of Bedford to clear off the debt of £30,000. The expenditure for 1928 was £100,654, which was larger by £10,005 than the sum spent in the previous year. In order to meet the estimated expenditure of £108,000 for 1929, when the full resources of the hospital would be available, it would be necessary to raise at least £30,000 from voluntary subscriptions and donations.

The Minister of Health at the Royal Free Hospital.

The Minister of Health attended the annual court of governors of the Royal Free Hospital, London, on March 19th. In a reference to the future of voluntary hospitals under new legislation he said that he thought the apprehensions of many were unfounded. It had been feared that the support of municipal hospitals by the rates would mean the end of the voluntary system. If such a result did follow it would be very unfortunate for the ratepayer, because he would have to take on his shoulders a burden hitherto borne by private generosity. But the fact was that these municipal hospitals could not be carried on effectively without the good will and co-operation of the voluntary hospitals. He had recently inserted in the Local Government Bill a clause which made it a statutory duty for local authorities, before considering how to dispose of the hospital accommodation with which they had

to deal, to consult with the bodies in their area representative of the voluntary hospitals and their staffs. The changes made by the bill, so far from injuring voluntary hospitals, would establish them in a position of security such as they had never yet enjoyed; they would be an indispensable feature of the institutional system in their areas. Mr. Chamberlain then turned to the Royal Free Hospital, which, he said, was a century-old example of the value of the voluntary system. It was remarkable also in that it trained only women doctors; he congratulated the hospital on having the names of three of its members in the recent Honours List. The successful invasion by women of almost every sphere of professional and public life was one of the features of the present age. At the same time the callings which had always been, and always would be, predominantly feminine had not suffered. There was no service of which the country had more reason to be proud than its nursing service. At the end of 1928 there were 64,000 nurses on the register for England and Wales, and in the previous year nearly 15,000 had given notice of their intention to practise as midwives. Both in general nursing and midwifery the standard had been continuously raised, so that to-day the qualified nurse was not merely a servant of the doctor, but his intelligent co-operator and partner. It was just seventy years since the name of the first woman doctor—Elizabeth Blackwell—appeared on the *Register*. According to the census of 1921 there were 1,200 women doctors, and since then between 2,500 and 3,000 women had entered the profession. There were also women dentists, pharmacists, veterinary surgeons, and sanitary inspectors; in law, surveying, architecture, accountancy, and in analytical and research chemistry, many women were engaged. In his own department, added Mr. Chamberlain, he was very conscious of this influx. Last year the local authorities were making use of 2,280 health visitors, all of them women, and in addition 340 visitors were employed by voluntary agencies in connexion with infant welfare centres. In the civil service it was no secret that women were entering the administrative grades in open competition; the first woman to succeed was to-day an officer of the Ministry of Health. All this was a noteworthy change in our social system. Mr. Chamberlain looked forward with satisfaction to the growing assistance of women in local administration. Last year no fewer than ten women had been elected mayors. In the Local Government Bill it was provided that where co-option took place on the committees and subcommittees of local bodies some of the co-opted members must be women. He believed that many ladies who, shrinking from a contested election, began by being co-opted, would have their interest so keenly enlisted that if the way of co-option were no longer open they would endeavour to enter as elected members. Prejudice against the progress of women was disappearing, and their co-operation entailed an enrichment of the life of the community.

Northampton General Hospital.

The annual report of the Northampton General Hospital for the year ended July 31st, 1928, will serve to remind its readers of the fact that, while the position of the voluntary hospitals, as a whole, has improved materially since the critical years after the war, there are many institutions which are still faced with crippling financial difficulties. The managers have been able to reduce the average costs per patient, and the ordinary income was slightly higher; in all departments, however, the work of the hospital has increased and the total expenditure has advanced somewhat. Consequently there was a deficit on the current account of over £3,881, and £5,650 has been transferred from legacy account. It may be added that a similar procedure was necessary in the previous year, when the board, faced with an accumulated deficit on working of almost £7,600, took £7,910 from legacy account. The financial reserves of the hospital have consequently been depleted, with a progressive loss in investment income. An appeal is being made for additional annual contributions, amounting to about £5,000 a year, to enable the hospital to balance its accounts in the future, and for donations to wipe out the existing deficit and provide for necessary expenditure. Attached to the report of the hospital is that of the Northamptonshire Hospital Week Committee, which, to present one of the more gratifying features of hospital finance, illustrates the growing importance of organized effort in the collection of moneys for the hospitals. An analysis of the amounts raised by this agency compares the results achieved in the eight years before the war with those of the past eight years by this body and the Northampton Hospital and Convalescent Fund. The average for each year in the pre-war period was £2,080, and for each year in the more recent period £11,148; in the earlier period such contributions equalled 17 per cent. of the hospital's expenditure, and in the later period 30 per cent. of its expenditure. A special effort is being made to complete the Hospital Week Committee's Jubilee Fund, which is to be used to provide a new operating theatre block.

Health and Cleanliness Council.

The Health and Cleanliness Council, which exists to diffuse information about the advantages of cleanliness, and to this end co-operates with public and educational bodies, held its third annual meeting at the Hotel Cecil on March 20th. Dr. G. F. Buchan, the president of the council, at a luncheon which preceded the business meeting, said that the number of representatives of voluntary agencies and local authorities present this year was 188, 32 more than on the last occasion. He explained that the council, at its annual meeting, determined the policy, and an advisory board existed to carry it out. During the year the council had assisted 156 health weeks, co-operating with the medical officers of health and with other organizations in arranging for exhibitions and demonstrations. Prizes were given for essays by school children, and essays from 1,750 schools were submitted for the award of the judges. Various publications to a total of five million copies had been distributed, and a book on health and cleanliness, for the use of teachers in schools, had been accepted in the areas of 145 local education authorities. Some education authorities were allowing the systematic use of their hoardings for the council's effective posters. A cinematograph van was another useful means of propaganda, and since its installation the demand upon its services had been greater than could be met. As a crowning glory the council was given a place in the Lord Mayor's Show, and the exhibit was effective enough to turn even the thoughts of Gog and Magog to soap and water. Dr. Buchan added that the aim of the council was at something more than mere aesthetic cleanliness—namely, at a cleanliness which had its roots in biology. Dr. F. E. Fremantle, M.P., also gave an address in which he spoke of the need for inculcating the health habit. He thought it was sometimes forgotten in the modern "push" for hygiene that, after all, the essential thing was not good housing nor the observance of the rules of sanitation, greatly important as these were, but a healthy spirit in the mind and habit of the people. Given such a spirit, they could, on occasion, disregard any of the rules of health, forego the customary precautions, break the usual regime, sure that the true spirit and understanding would never permit undue transgression. The important thing was the spirit, not the schedule, and he commended the council because it was endeavouring not to put forward a meticulous code of health, but rather to evoke the spirit and desire for health and cleanliness from which all else would follow. After the business meeting those present had the opportunity of seeing the exploits of the latest film star, "Giro the germ."

Coroners' Inquests in London.

The number of deaths reported to the London coroners in 1928 was 8,316, an increase of 838 upon the figure for 1927. Of these deaths, 2,653 took place in mental hospitals and other institutions. An inquest was deemed necessary in 4,173 cases, and 76 per cent. of the inquests, including hospital cases, necessitated *post-mortem* examinations. A verdict of murder was returned in 18 cases, of manslaughter in 2, and of suicide in 571, the last figure representing a decrease of 40 on the previous year. Seven inquests were held in connexion with executions. Deaths from want of attention at birth increased from 27 to 44.

In all, 2,137 persons met their death by accident, as against 1,916 in 1927. There were 55 deaths by drowning. A verdict of "death from natural causes" was returned in 1,129 cases, and there were 14 verdicts of "cause of death unknown." The inquests on newly born children decreased from 108 to 104; there were three verdicts of murder of the newly born, and in 37 cases it was decided that the child was stillborn. Excessive drinking accounted for 30 deaths, the same number as the previous year.

Scotland.

THE KING has appointed Dr. William Macrae Taylor, late surgeon major, 1st Lowland Brigade, R.F.A.(T.A.), to be Surgeon Apothecary to His Majesty's Household at the Palace of Holyroodhouse, in succession to Colonel David James Graham, O.B.E., R.A.M.C.(T.A.), deceased.

Training of Deaf and Dumb Children in Edinburgh.

An interesting survey of the activities of the Edinburgh Royal Institution for the Education of Deaf and Dumb Children was presented to the directors at the annual meeting by Dr. Kerr and Mr. B. P. Jones, late superintendent of the deaf and blind education under the London County Council. The institution consists of two departments: the school proper with between 90 and 100 children, and the Strathern House Nursery School for 30 children, aged 3 to 8. Each child was examined individually, and its capacity for speech and for understanding others was tested by various standards. As a result it was estimated that one in five will leave school understanding and able to be understood by strangers, that a third of the whole will be able to be understood and to work in familiar surroundings, while the remainder will experience more or less difficulty. An unusually high percentage (68) of totally deaf cases, and a similarly high proportion of congenital cases, were noted; the explanation was offered that the baby school is attracting numbers of obviously deaf children, and that others with defective hearing are being cared for elsewhere, or possibly neglected. The risk of partially deaf children becoming dumb for want of immediate care, and the value of early education of the deaf, are stressed and it is noted with satisfaction that the number of children admitted to this institution below the age of 7 years is very large. Among the causes of deafness it is noted that meningitis is incriminated in 17 out of 45 pupils over the age of 9, while among the 60 below this age no meningitis case appears. Meningitis being a rare cause of deafness in this country the suggestion is made that these cases are attributable to the war. The success of a nursery school for the deaf is considered by the examiners to have been demonstrated, and suggestions are made for obtaining improved results in the case of the older children; one proposal is that the possibility of combining the present separate efforts should be explored, and a single educational institution be established for training deaf children in Edinburgh.

Glasgow Royal Hospital for Sick Children.

The annual report of the Royal Hospital for Sick Children, Glasgow, shows that during the past year the number of patients treated in the wards of the hospital numbered 6,492, while the attendances of out-patients at the dispensary connected with the hospital numbered 90,585. At the country branch of the hospital at Drumchapel 502 children were treated. The ordinary income for 1928 was £29,543, and the expenditure £39,989. The deficit in ordinary income was made up from extraordinary income with a surplus of £1,950, and as the ordinary income had shown an increase of £2,300 over that of the previous year, the deficit was slightly less than before. The directors make a special appeal for a fund of £20,000, of which the income would be spent in providing the necessary facilities for research into the causes and prevention of diseases of infancy and childhood, which is urgently required at the present time and which they feel should not be a charge upon the ordinary funds of the hospital.

Preventive Medicine in Teaching.

Dr. J. Parlane Kinloch, Chief Medical Officer of the Department of Health for Scotland, delivered the closing address for the winter session to the students of the Anderson College of Medicine, Glasgow, on March 16th, and took as his subject "Preventive medicine and the medical curriculum." Dr. Kinloch said that in recent years medicine was being studied and taught from a new standpoint, and that teachers in the several departments of medical study were tending more and more to treat their subjects from a preventive point of view. It was one of the aims of the legislature, as well as being desired among the people of this country, that there should be an adequate health service for the whole community. This would involve training of the people in personal hygiene, supervision of maternal and child life, as well as of school life and industrial life, and of the environment in which they lived, together with the comprehensive prevention and treatment of infectious and non-infectious disease. Certain axioms of preventive medicine should be constantly perceptible to the student in all aspects of his work. These included heredity, which determined the inherent constitution of the body; the control of environment, especially in regard to ventilation, water supplies, and insect control; the ways of increasing general resistance to disease by nutrition, open air and sunlight, adequate exercise and rest, etc.; the methods of active protection, which involved the whole range of immunizing processes; and lastly, the epidemic constitution—that is, the factors determining epidemic prevalence. A continued improvement in medical education would certainly lead to an improvement in the medical service, but the conception of prevention must first dominate the entire system of medical teaching. In order to have an adequate medical service it was necessary that the training and work of the general medical practitioner and of the statutory medical officer should be co-ordinated, so that the general practitioner should regain his position of family doctor, fully responsible for watching over the family health and for preventing disease, and employing for that purpose the official machinery provided by local authorities. It might be asked how the medical student was to find time within his five years of training for these further practical studies. His suggestion was that much of the older pharmacology, the older pathology in so far as it related to degenerative processes, and a great deal of the fascinating study of forensic medicine might be omitted from the ordinary medical course, and be reserved for those wishing to specialize after graduation.

Ireland.

School Medical Inspection in Dublin.

IN the course of a lecture for nurses on school medical inspection Dr. Kerry Reddin recalled that in 1879 a definite inspection of school children was established in Paris, and shortly after in Sweden and Belgium. In 1891 similar action was taken by England, which was followed quickly by America and Egypt. Saorstat Eireann had definitely adopted the scheme. The objects of school medical inspection were fourfold: (1) for statistical purposes, to show the physical condition of the child and to establish facts in connexion with the alleged defective physique of children; (2) to benefit the individual child; (3) to conduct propaganda about teeth, digestion, and personal hygiene; and (4) to improve the sanitary condition of the schools in which the children worked in regard to ventilation, light, heating, overcrowding, lavatory and urinal accommodation, washing and drinking facilities, and to supply adequate playgrounds. Medical inspection was provided (1) on admission to school, (2) at the age of 8, and (3) at the age of 12. Dr. Reddin said that up to the end of December they had inspected approximately 12,000 children. Of these 7,000 had one or more defects; 5,000 of these required treatment immediately, and 2,000 were under observation; 2,243 were suffering from tonsillar affections, of whom 507 required treatment and the

remainder were under observation; 1,433 suffered from defective vision, and of these 1,000 required treatment immediately, and 433 were under observation. These figures did not include cases of squint, of which there were nearly 500. There were also 630 cases of external eye affection. Of skin diseases, including ringworm, there were 442 cases, 300 of which required urgent treatment, and 142 were under observation. There were 227 cases of ear disease, of which 132 required treatment, and the remainder were under observation.

Public Health in County Limerick.

At the last meeting of the Limerick County Council a letter was read from the Department of Local Government and Public Health relative to the question of the appointment of a medical officer of health for the county. The department expressed the view that the appointment of such an officer should be considered in conjunction with the county sanitary services on the lines presented by the Local Government Act, 1925. That Act contemplated that the general direction of the public health activities of each county should be placed in charge of a county medical officer of health, whose function had been clearly described in detail. Among other matters of pressing importance might be mentioned eradication of diphtheria and enteric fever cases, the prevention and correction of crippledom, the reduction of infant mortality, which, in the case of co. Limerick, had maintained an exceptionally high incidence for an area comprising no urban districts, and the protection of women against the special dangers associated with childbirth. A school medical service controlled by a county medical officer of health would quickly follow, and provide early treatment for potential cripples, while after-care could be attended to by voluntary organizations. In the county of Limerick the maternity death rate among women from puerperal sepsis stood at an average in advance of any other county in the Saorstat, being, in 1924, 3.65; in 1925, 3.18; in 1926, 4.17; and in 1927, 3.29. From these figures it would be seen that in the county of Limerick there was unmistakable need for organized supervision over maternity practice. The chairman pointed out that every progressive country had such a scheme in operation, and other counties in the Saorstat were already working such a scheme. After some discussion it was decided to adjourn the matter for a fortnight.

Correspondence.

COLLES'S FRACTURES.

SIR,—My friend Mr. Bankart, in an interesting note on Colles's fracture (March 16th, p. 491), states that he never, or hardly ever, sees a case of Colles's fracture which is properly reduced, and he adds:

"The reason for these uniformly bad results is that the method of reduction almost universally employed—namely, that advocated by Sir Robert Jones—is entirely inadequate in the hands of the majority of those who have to treat these cases. . . . It may be that the powerful hands of Sir Robert Jones (and some others) can reduce a Colles's fracture in any manner that he chooses; but . . . the method which he advocates is quite inadequate in the hands of the great majority."

Mr. Bankart pays me an undeserved tribute when he speaks of my "strong hands." My hands, alas! can no longer be classified as strong, but I have no more difficulty now in reducing a Colles's fracture than in the days of my youth. Strength is not an important asset, but the method of its application is.

The principle which underlies my very simple procedure is extension of the radius, pronation of the lower fragment, and supination of the upper. The grip I employ involves *direct* pressure on the lower end of the radius, and disimpaction and reduction are effected by a combined movement.

I have seen many surgeons attempting to reduce a Colles's fracture by the "Jones method" in a hopelessly inadequate fashion. They hold the hand, put traction on the wrist-joint, and pronate. The strength of Samson would be helpless to effect reduction in this way.

The method described by Mr. Bankart, where the arm is placed upon a wedge block, is very like my own as far as the act of reduction is concerned, but apparently no traction is used and preliminary disimpaction is not aimed at. This must involve greater force and crushing of the lower fragment—certainly more force than I ever use. It is surely hazardous to apply the whole of one's body weight—even occasionally—upon a fractured end with the palmar aspect of the wrist over a wedge. There must be some risk of injury to tendons and nerves if this method be followed. I know Mr. Bankart's work so well that in his own careful hands I could predict that his patient would be immune from damage, but what of others? Is it wise or safe?

No, strength is not an important factor. My friends who have watched me reduce this fracture know how little I depend on force. Indeed, in many cases I use no anaesthetic, for the manipulation is rapid, and after the momentary pain of reduction little further complaint is made.

I agree that once reduction is complete the question of type of splint is of no great importance.—I am, etc.,

Liverpool, March 18th. ROBERT JONES.

SIR,—In your issue of March 16th Mr. Bankart made some very interesting observations on the treatment of Colles's fracture. I heartily agree with his general conclusions, but think that the method he advocates of reducing deformity as a routine with the aid of a wedge is open to criticism. There is no doubt that the injury in question is the result of great force, and that impaction of the bone fragments is generally correspondingly firm. Brute force will, no doubt, break through this impaction and approximately reduce the deformity, but there must surely be a risk of serious damage to the nerves and tendons lying between the bone end and the wedge when this method is employed. I have observed evidence often enough of partial involvement of the median nerve, due either to the primary injury or to subsequent manipulation. Damage to tendons or their sheaths always results from the primary injury. Any increase of this caused by the process of reduction must certainly delay return of full function.

It appears to me that in order to replace the lower end of the radius the ideal procedure is to disimpact and then to manipulate the fragment into position. If this procedure is effectual there is much less risk of damage to soft parts. One must admit that there are cases in which manipulation by hand fails to effect full reduction, even when the attempt is promptly carried out. I think then that open reduction through a dorsal incision is justifiable. It is a simple procedure, and it can be carried out with a minimum of trauma to the surrounding structures.

I very heartily agree with Mr. Bankart in his condemnation of the use of the Carr's splint for holding the Colles's fracture. I think there is now general agreement that fixation after reduction is best secured by a dorsal splint with the wrist in a flexed position.—I am, etc.,

London, W.1, March 19th. C. MAX PAGE.

SIR,—In your issue of March 9th (p. 477) Mr. Cochrane drew attention to non-reduction of the forward luxation of the head of the ulna as the real cause of so many bad results in the treatment of Colles's fracture. For this reason we have reviewed the *x*-ray plates in our series of Colles's fractures before reduction, and could find only one particularly severe case in which a true luxation definitely existed.

In addition, some hundreds of *x*-ray plates had been examined previously, and we have no notes of the form of luxation to which Mr. Cochrane refers. It would appear, therefore, that Cotton's forward luxation of the head of the ulna must be uncommon as a cause of unsatisfactory results, our experience being precisely that of Edwards and Clayton.

Mr. Bankart will forgive us if we politely but firmly disagree with the statement in his article of March 16th (p. 492) that "the position of supination is irksome to the patient and not really necessary." As we remarked, the

position is quite comfortable in spite of the forearm being fully supinated, and we believe the position to be necessary because some Colles's fractures have shown a tendency to reproduce the displacement after reduction.

In answer to the last question raised by Mr. Bankart we would add that, through the kindness of Mr. Slesinger, surgeon in charge of the fracture department of Guy's Hospital, Colles's fractures, with others, are reduced by house-officers—a possible explanation for the unsatisfactory results we have found. And also that Mr. Slesinger kindly permitted us to try our own methods of treatment.—We are, etc.,

E. DUDLEY GRASBY,
SCOTT-RUSSELL TRICK.

Tunbridge Wells, March 18th.

THE THERAPEUTIC VALUE OF ULTRA-VIOLET LIGHT.

SIR,—Having read the remarks on artificial light treatment in the report of the Medical Research Council, 1927–28, may I call the attention of your readers to certain statements therein contained?

On page 14 the following lines appear: "*Since the invisible rays of ultra-violet 'light' were found to hold the nutritive properties of sunlight*" (italics mine), "it was natural to suspect that artificial lamps, rich in ultra-violet rays, might be an effective substitute for the missing sunshine in our cities." The first statement in this sentence is incorrect. We know that ultra-violet rays convert ergosterol into vitamin D, and therefore produce the physiological phenomena caused by that product, but this is far from proving that they "hold the nutritive properties of sunlight." Such an assumption is jumping to conclusions, and almost certainly very wide of the mark.

Later (page 15), the report states that "exactly the same effects for good or evil follow inflammation of the skin blood vessels inflicted by heat or by other irritants than light. There is no present reason to know that artificial light can do more in this way than a mustard plaster, which is indefinitely [*sic*] cheaper." The only interpretation to be put upon this statement is that the investigators selected by the Medical Research Council have been inflaming the skin of babies by a dosage of ultra-violet light sufficient to produce this effect. Could any experienced clinician expect to obtain by such means the beneficial effect of properly applied treatment by artificial light? Does the Council really mean, moreover, that a child can be cured of rickets by the application of a mustard plaster? If so, can it quote any case in which such a result has been obtained? We may surely ask it to support its statement by scientific evidence.

On page 14 it says, "No evidence could be found of any gain in weight, of lessened anaemia, or of better resistance to infective illnesses in the treated group as compared with a similar group of untreated children." This statement will cause little surprise.

There is one more sentence that cannot be passed over without comment: "It would seem also to be the special duty of hospitals and schools or other clinics expending large sums of public money upon artificial light to use part of the expenditure to demonstrate by properly controlled trials their justification for spending more." All the great hospitals in London, not to mention the provinces, have expended such sums upon the establishment of departments for giving treatment by artificial light, because this form of treatment has been more than justified by the results obtained, and the sentence is a direct reflection upon the distinguished medical men who are responsible for their administration and to the executive bodies concerned in this considered expenditure.—I am, etc.,

G. MURRAY LEVICK.

London, W.1, March 19th.

SIR,—With reference to the recent report of the Medical Research Council it might be of interest to recapitulate the conclusions I arrived at as the result of work at Queen Mary's Hospital, Carshalton. They were as follows:

1. The light bath gives pleasure to the vast majority of patients, and has no dangerous after-effects.
2. Patients with superficial tuberculous ulcers, rickets, and debility do well, but these cases are easily treated without the use of light. The local application of the rays is of value in the treatment of lupus, but the general light bath has little effect.
3. The course of tuberculosis of the spine, hip, or knee, with or without sinuses, is apparently not influenced in any way by the action of light.
4. The treatment gives no protection against the spread of infection.
5. Pigmentation of the skin has little, if any, clinical significance, and absence of pigmentation is no contraindication to light treatment.
6. Light treatment has no definite influence on the physical or mental development of the normal or subnormal child.

The report was published in full in the Annual Report of the Metropolitan Asylums Board, 1925–26, and was referred to in the *British Medical Journal* of August 28th, 1926 (p. 399). Although various modifications of the technique have been tried, the results obtained since 1926 have not led me to alter, to any great extent, my opinions on the value of actinotherapy. The great benefit that is derived from ultra-violet light is a transient feeling of well-being; this, coupled with the healthy appearance it gives the patients, has undoubtedly a beneficial influence, and for this reason only I consider the administration of ultra-violet light justifiable.—I am, etc.,

N. GRAY HILL, *M.C.*, M.B., B.S.Lond.

Queen Mary's Hospital for Children,
Carshalton, Surrey, March 19th.

VACCINATION IN THE LIGHT OF RECENT EXPERIENCE.

SIR,—Dr. F. A. Belam, in the *Journal* of March 16th (p. 524), raises the important practical question of the relationship of "severe" small-pox to the "mild" variety (alastrim), with which we are now so familiar. He concludes that the two (types) "do not breed true to type, but true to disease, of which there is one."

I would suggest to Dr. Belam that a better view of the situation is as follows. We are not dealing with two different "types" of small-pox (the word "type" has merely a clinical significance), but with two distinct varieties. In each variety one may meet both mild and severe clinical types; consequently mere clinical mildness or severity is of no pathognomonic significance in any given case. For the same reason, to call one variety "severe small-pox" and the other variety "mild small-pox" is futile and only adds to the confusion. A far better nomenclature is "variola major" and "variola minor," as first suggested by R. W. Jameson.

The essential and all-important difference (although there are others) between variola major and variola minor is that whilst the one propagates a serious, fatal, and permanently disfiguring affection, the other propagates an affection which (for practical purposes) is non-fatal, non-disfiguring, and clinically trivial. The fact that a small proportion of the cases of variola minor (say, 5 per cent.) can be classed as clinically severe, with a profuse eruption, and that there is a possibility that occasionally, at the extremes of life or in debilitated subjects, the affection may even prove fatal, does not affect the truth of this as a general proposition.

As to the question whether we can rely upon variola minor to maintain its present mild type, or whether it may not revert to the characteristics of variola major, the answer is that although it has now been recognized in this country for over a decade, it has as yet shown no tendency (judging by its case mortality) to increase in severity, or to approximate to variola major in virulence. Any reports to the contrary can be accounted for by local fluctuations such as we find with any epidemic disease. More important is the fact, as testified by that astute observer Dr. C. V. Chapin of Providence, that in U.S.A. there is also no evidence of any reversion. Moreover, there is reason to believe that in certain countries variola minor, under the names of alastrim, amaas, Kaffir-pox, etc., has existed from time immemorial, yet has continued to breed true.

The answer, then, to the question whether we are dealing with one disease or with two, is that there is one disease, small-pox, with two distinct varieties. These two varieties are doubtless very closely related. They have a very

similar relationship to vaccinia, and there is little doubt that they confer mutual immunity against each other. The position is analogous to that of typhoid fever and paratyphoid, and there is a good deal to be said for the names suggested by R. P. Garrow—namely, "small-pox" and "para-small-pox."

In view of all this I suggest that in the interest of statistical accuracy it is eminently desirable that the Ministry of Health should now recognize that we are dealing with two entities and authorize distinctive names. At the same time they could enact that both varieties were notifiable and that both could be covered, in any case of doubt, by the one word "small-pox." So long as cases of variola major are included in the same column with cases of variola minor any figures as to case mortality are clearly valueless.—I am, etc.,

Leicester, March 16th. C. KILLICK MILLARD.

THE INTRACUTANEOUS TUBERCULIN TEST.

SIR,—Now that Professor Lyle Cummins has entered into details, I am more than ever convinced that my criticism is sound, and I fear the finding of the investigators adds nothing to our knowledge, and may mislead some who are not fully conversant with the nature and meaning of the interesting and illuminating manifestations of allergy, brought to our notice by means of various methods of injecting tuberculin.

Professor Cummins describes the lesion caused by intracutaneous injections of tuberculin as "a raised plaque of oedema, usually surrounded by a blush, etc." The lesion which I can produce at will in a tuberculous subject is certainly not "a plaque of oedema," and a plaque of oedema in no way resembles a "cocarde" (Mantoux). The lesion of my making is a red, raised, indurated, painful, tender area of inflammation, resembling a Pirquet lesion. It is not an oedematous condition, but an inflammatory formation caused by the reaction of sensitized tissue to the specific toxin of the tubercle bacillus. It is a form of allergic reaction, the histology of which has been described and explained in all its wonderful detail by the late Professor K. E. Ranke. Moreover, this allergic manifestation cannot be adequately described on the third day. It may persist for many weeks. I shall therefore be greatly surprised if "this most important result so far gained from our Welsh investigation" does not prove to be worthless. Long ago I said this of Professor Dreyer's work on his "diaplytes," as soon as his work was published, and I was right. I say the same of Professor Cummins's paradoxical views upon the reaction of tuberculin.

But Professor Cummins goes beyond his text, and ventures to make this statement in his reply: "so far as adults in this country are concerned, a positive tuberculin reaction has no diagnostic significance whatever."

The *post-mortem* records of E. France, Mikulicz, Mettetal, and Binswanger show that a positive tuberculin reaction in the hands of experts has the most profound diagnostic significance. Professor Cummins can hardly impeach the evidence of various experts derived from direct *post-mortem* examinations.

There is also clinical evidence, indirect and direct. In my Parkes Weber prize essay, published in 1912, I have tabulated over 120 cases in which a wrong diagnosis was given till I tested with doses of tuberculin. For years I have been investigating certain lesions of the eye, both in children and adults, the cause of which was undetermined until I used tuberculin for diagnosis. Most of these patients came from ophthalmic surgeons. The lesions were chronic conjunctivitis, scleritis, episcleritis, and irido-cyclitis. Till tuberculin was used for testing tuberculosis was not suspected. What is true of lesions in the eye or skin or throat, which we can see, is equally true of tuberculous lesions hidden from sight or too small to give any evidence of their existence until tuberculin tests are properly conducted and logically interpreted by a trained expert.

I trust that medical men will pay no heed to unwise condemnation of the indispensable diagnostic agent discovered by Koch, which should be exploited consistently and zealously on behalf of suffering humanity. If Professor Cummins would pay me a visit I would gladly show him the history of numberless cases, in which test doses of tuberculin have established beyond doubt the etiological factor in many obscure forms of disease, which defied diagnosis by any other means. The advantage of early diagnosis largely depends upon this scientific test. Surely it is a golden truth in tuberculosis that, when diagnosis is easy, treatment is difficult, and when diagnosis is difficult, treatment is easy.—I am, etc.,

London, W.1, March 16th. W. CAMAC WILKINSON.

ESTIMATION OF HEPATIC EFFICIENCY.

SIR,—With regard to the article on estimation of hepatic efficiency published in the *Journal* of March 2nd (p. 395) it may be of interest to note that at the Royal Mineral Water Hospital, Bath, there was carried out for two of the honorary physicians (Dr. Gordon Watson and Dr. Lindsay), on seventy consecutive cases admitted to their wards, Roch's test for the antitoxic function of the liver, as described in *Physiological Principles in Treatment*, by W. Langdon-Brown (fifth edition, p. 165).

This test was made because focal sepsis, so often assigned as the cause of rheumatoid arthritis, seemed an insufficient explanation; so many people have marked focal sepsis and yet do not get rheumatoid arthritis that one suspected it was not the focal sepsis, but some flaw in the antitoxic powers of the bodily metabolism which might be at fault. The liver is the great detoxicating organ of the body; was the liver the offender in these cases? It was decided to test its antitoxic function. The results are quoted below.

Rheumatoid arthritis:		Neuritis:	
Roch's test	++ in 60%	Roch's test	++ in 35%
" "	+ in 16%	" "	+ in 16%
" "	− in 24%	" "	− in 49%
Fibrositis:		Sciatica:	
Roch's test	++ in 70%	Roch's test	++ in 33%
" "	+ in 6%	" "	+ in 11%
" "	− in 24%	" "	− in 56%
Osteo-arthritis:		Subacute rheumatic infection:	
Roch's test	++ in 15%	Roch's test	+ in 50%
" "	+ in 32%	" "	− in 50%
" "	− in 53%		

++ = a strong purple colour given.
+ = a definite change of colour.
− = no change of colour.

It should be noted that this test is for the antitoxic function only, and these notes are sent, not in vindication of Roch's test, but impartially to show the reactions which occurred in these seventy rheumatic cases.

The results were published in the *Proceedings* of a conference on rheumatic diseases held at Bath in May, 1928, and I am making this communication with the kind permission of the two honorary physicians on whose cases the tests were made.—I am, etc.,

LEO DELICATI,
Resident Medical Officer, Royal Mineral Water Hospital, Bath.

March 5th.

THE HISTORY OF CINCHONA.

SIR,—In the paper on the history and lore of cinchona read in the Section of History of Medicine at the Annual Meeting of the British Medical Association at Cardiff and reported in the *Journal* of December 29th, 1928 (p. 1188), Mr. C. J. S. Thompson refers to the "picturesque story" of the fortuitous discovery of the virtues of cinchona bark by an Indian who drank of water into which a cinchona tree had fallen. Mr. Thompson remarks that the story, which was not recorded until the eighteenth century, is without foundation. It does not, however, appear to be generally known that a play based upon this story was produced by Montigny, the director of the Gymnase, at the Ambigu-Comique Theatre in Paris in the thirties. My authority is Vandam's *An Englishman in Paris* (Chapman and Hall, 1892), vol. i, p. 226. I venture to quote

a summary of the play as given in a note in that interesting book of reminiscences.

The play . . . was called "Amazampo; or the Discovery of Quinine." The scene was laid in Peru in 1636. Amazampo, the chief of a Peruvian tribe, is in love with Maïda, who on her part is in love with the son of the viceroy. Amazampo is heart-broken, and is stricken down with fever. In his despair and partial delirium he tries to poison himself, and drinks the water of a pool in which several trunks of a tree called *Kina*, reported poisonous, have been lying for years. He feels the effect almost immediately, but not the effect he expected. He recovers and takes advantage of his regained health to forget his love passion, and to be avenged on the oppressors of his country, many of whom are dying of fever. Lima becomes a huge cemetery. . . . Amazampo saves the life of the wife of the viceroy by compelling her to drink the bark-impregnated liquor.

I have never had an opportunity of seeing a copy of the original play, but am sending you this note, which I trust may be of interest to your readers.—I am, etc.,

Kenya Colony, Jan. 27th. JAMES H. SEQUEIRA.

DIET AND APPENDICITIS.

SIR,—In his very interesting address published on January 5th (p. 6) Mr. Zachary Cope puts forward the suggestion that "a predisposition to appendicitis would be lessened by (1) preventing constipation, (2) minimizing the amount of meat eaten, and (3) increasing the amount of food containing cellulose." In support of this may I be permitted to bring forward the following observations?

In my work here I am dealing almost entirely with native people of the Bantu race, and it is a fact of my own experience, and also in that of others, that appendicitis is exceedingly uncommon in them. In the light of the above suggestions it is interesting to observe the habits and customs of these natives as regards bowel evacuation and food.

Constipation.—The natives regard themselves as being constipated if they do not go to stool at least twice a day. Quite commonly they go out three or four times in the course of a day. In this connexion it is to be noted that in their squatting attitude while at stool they employ the pressure effect of the muscles of the abdominal wall to the best advantage. The comfortable water closets of civilization do much to minimize the valuable aid of these muscles.

Meat.—While it is true that the natives are exceedingly fond of meat, it is equally true that they very seldom have it in ordinary circumstances. They are not regular meat-eaters, and the total quantity eaten by the average native in the course of a year is very much less than that consumed by the average European.

Cellulose-containing Food.—The staple article of food among all classes of natives is "mealies" (or maize). They have mealie meal porridge every morning; stamped mealies in the middle of the day; and again the porridge at night. Variety is afforded by the addition of brown beans at midday, and by the occasional use of "kaffir-corn" in place of mealie meal. Even their bread is made from mealie meal; and all this food is very rich in cellulose. In Britain we should give it only to horses. Thus there are in the life of the Bantu people three important factors which, theoretically at least, militate against the onset of appendicitis: (1) frequent and regular evacuation of the bowels, (2) the absence of much meat in the diet, and (3) the presence of abundant cellulose in the everyday food. These people do not suffer from appendicitis, and, moreover, they are not afflicted with gall-bladder affections; as Mr. Cope reminds us, cholecystitis and appendicitis are frequently found together.

While it would appear, then, that the simple diet of these native people serves to protect them from two of the serious diseases of the digestive system, it must also be pointed out that it is by no means a good all-round diet. It is deficient in vitamin quality, and the health of the natives suffers in consequence of his deficiency. That, however, is another question altogether, and does not affect the truth of what I set out to show.—I am, etc.,

R. L. PATERSON, M.B., Ch.B.

Buchanan Medical Mission, South Africa, Feb. 5th.

MINOR ORTHOPAEDICS IN GENERAL PRACTICE.

SIR,—In reference to Dr. R. A. Murray Scott's letter in the *Journal* of March 16th (p. 524) it may be of interest to him to know that nearly thirty years ago I purchased boots, of the shape he desires, at Holden Brothers, Harewood Gate, Oxford Street, W. Their business has been recently transferred to Messrs. T. Holland and Son, 48, South Audley Street, W.

I have recommended boots and shoes of anatomically correct shape to a number of patients for many years. Women, particularly, are difficult to persuade, and many will suffer agonies rather than wear a shoe which they allege is ugly and not "stylish"; on the other hand, not a few, after experience, have been thankful for the advice.

An important matter also, especially for children, is the shape of the sock or stocking. Much of this make of footwear is pointed at the toes and will not allow sufficient expansion for the big toe to take up a straight position, but shops dealing in "hygienic" footwear can supply these articles with a straight "inside" line.—I am, etc.,

W. W. SHRUBSHALL, L.R.C.P.Ed.,
Burgess Hill, March 18th. D.P.H.Lond.

CYCLICAL VOMITING.

SIR,—The apparent error which Dr. H. C. Cameron (March 23rd, p. 573) points out in your account of my paper on the chronic dyspepsias of childhood at the Medical Society of London (March 16th, p. 502) was the unfortunate result of compression in your otherwise excellent summary of my remarks. The actual words I used were:

"The frequency of this form of latent acidosis has been much emphasized by Dr. Cameron, and Dr. Osman has stated that 30 per cent. of hospital children suffer from cyclical vomiting."

—I am, etc.,

London, W.1, March 23rd. REGINALD MILLER.

Obituary.

DR. JOHN LAIRD, who died in February at the age of 84, after only three hours' illness, received his medical education in Dublin, where he obtained the diploma L.R.C.S.I. in 1865, and the L.R.C.P.I. and L.M. three years later. For fifty years he conducted a large practice in Sligo, and was subsequently granted a pension by the Sligo board of guardians in acknowledgement of the valuable services he rendered. He contributed many papers to medical periodicals, and wrote a book on tuberculosis, which reached a second edition. He was highly appreciated by his colleagues, and was on one occasion invited to be president of the Irish Medical Association, but declined, being of a retiring disposition. He was buried in Mount Jerome Cemetery, Dublin, on February 25th.

DR. JAMES WILSON, who died on February 9th at his residence in Claughton, at the age of 87, was educated at King Edward's School, Birmingham. When 22 years old he went to America and acted as surgeon to the Northern Forces throughout the whole of the campaign in the late American Civil War, receiving subsequently the thanks of the President and Congress of the United States. He then returned to England, and engaged in medical study at the Universities of Aberdeen and London, obtaining the diploma M.R.C.S.Eng. in 1861, the L.S.A. in 1862, and graduating M.D., C.M.Aberd. in 1875. For a few years he was physician and laryngologist to the Worcester General Infirmary, but a breakdown in health necessitated his undertaking a sea trip to Australia. He later commenced practice in Liverpool, where he specialized in diseases of the throat, nose, and ear. After thirty-six years, however, a second breakdown in health compelled him to limit himself to consultation work. He wrote numerous articles and books, chiefly relating to diseases of the nose and nasopharynx. He was for some time physician for diseases of the throat and nose to the Liverpool Clerks' Association, and medical referee to the National Sanatorium for Consumption at Bournemouth; he had also held

a commission as surgeon in the Royal Navy. He was one of the pioneers of cautery treatment for turbinal hypertrophy, and achieved a distinguished reputation as a specialist in diseases of the nose, throat, and ear. Eight years ago he retired finally, and went to live in Birkenhead. He was twice married, and is survived by his second wife.

Dr. ARNOLD WILLIAM MONTFORT AUDEN of Birch House, Leigh, Lancashire, who died at his residence, after a week's illness, on March 6th, at the age of 65, had been in general practice in Leigh for thirty-four years. The eldest son of the late Rev. W. Auden of Church Broughton, Derbyshire, Arnold Auden was educated at Shrewsbury School and at Clare College, Cambridge, where he graduated B.A. in 1886. He was a man of fine physique and an oarsman of considerable ability, rowing in the school crew at Shrewsbury and for his college at Cambridge. In other directions also he was a distinguished athlete, winning, when at Shrewsbury, the senior steeplechase and the quarter-mile, among other events. After a period as schoolmaster he decided to enter the medical profession, graduating M.B., C.M. at Edinburgh University in 1895. While at Edinburgh he served in the Queen's Rifle Volunteer Brigade. In his practice he was much beloved by all his patients; he was especially considerate to the poor, and a generous subscriber to numerous charities. He was a keen freemason, and held the appointment of medical officer to several of the local collieries. He will be greatly missed in the neighbourhood, and his funeral was an impressive tribute to the respect in which he was held. He was a member of the British Medical Association.

Dr. EDMUND LEE, who died on March 20th, in his eighty-fourth year, was a well-known and highly respected figure in North Manchester medical circles. He was educated in Manchester, and having obtained the diplomas of L.R.C.P. in 1871 and M.R.C.S. in 1873, he engaged in private practice, the whole of his active professional life being spent in Collyhurst, a densely populated industrial district, where his genial and kindly manner and sound attainments attracted a large clientele. In spite of the physical exertions incidental to this class of practice, he maintained the keenest possible interest in the progress of scientific medicine. His leisure hours were largely devoted to keeping himself abreast of such advances as seemed likely to be of practical service to his patients. He was a man of wide reading, and this, coupled with his daily contact with suffering and poverty, gave him an unusually broad, sane, and sympathetic outlook on life. For some years he was chairman of the North Manchester Medical Union. He was hardly ever absent from the meetings, feeling social intercourse with professional colleagues to be an important factor in promoting understanding and *esprit de corps*. He had a record of some fifty years of quiet, unassuming, useful work, and a reputation for fair and neighbourly dealing. At the end of a long life he leaves behind a very pleasant memory. Two of his sons are in practice in Manchester.

Dr. ALEXANDER GRANVILLE, who died in London on March 23rd after a long illness, was born in Egypt in 1874, and received his medical education at St. Bartholomew's Hospital. He obtained the diplomas of M.R.C.S., L.R.C.P. in 1894, and held the offices of house-surgeon and house-physician at the West London Hospital and senior assistant anaesthetist at St. Bartholomew's Hospital. He served in the South African war during 1899–1901, and was awarded the Queen's medal with three clasps. He subsequently joined the Egyptian Government Service, where he held several important posts, including those of inspector of the Public Health Department, medical officer of health for Cairo, director of the Municipal Section of the Ministry of Interior, Cairo, director-general of the Alexandria Municipality, Egypt, and president of the International Quarantine Board of Egypt. He received the honours of C.M.G. and C.B.E. in 1916 and 1920 respectively, and was created a Pasha by King Fuad in 1922 in recognition of his services on the Labour Dispute Conciliation Board of Egypt. He was a Knight of the Order of St. John of Jerusalem, Grand Officer of the Order of Ismail, and had been the recipient of honours from France, Italy, Greece, and Belgium.

The following well-known foreign medical men have recently died: Dr. VAN BOECKEL, principal public health inspector in Belgium; Dr. LÉOPOLD BAUMEL, honorary professor of the Montpellier Medical Faculty, aged 75; Dr. BARATTE, formerly director of the health service of the Dardanelles Expeditionary Force and Commander of the Legion of Honour; Dr. GIUSEPPE TAGNINI, a Bologna neurologist who has given his name to the oculo-cardiac reflex, aged 62; Dr. PIETRO GIACOSA, director of the Institute of Materia Medica and Pharmacology at Turin, aged 75; Dr. J. VON KRIES, emeritus professor of physiology at Freiburg, aged 76; and Dr. ALEXANDER MAXIMOV, an histologist and haematologist of Chicago.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

The Local Government Bill.

Third Reading in the House of Lords.

IN the House of Lords, on March 21st, Lord ONSLOW formally moved the third reading of the Local Government Bill.

Lord DE LA WARR said that peers belonging to the Labour party must continue their opposition to the bill. It would put some social services, notably the health services, on a block grant system based on a three-year period and thereafter for five-year periods. There was no guarantee in the bill that at the end of those periods new money would be forthcoming from the Exchequer to meet the new demands of the localities. Local authorities would be less free to provide new services.

The LORD CHANCELLOR said the Government believed that in the bill it had effected improvements in the efficiency of social services.

The motion to read the bill a third time was carried by 70 to 11, and the House went on to make final amendments to it.

Clause 2, dealing with the functions of Poor Law authorities in respect of infant life protection and vaccination, was amended to allow councils to acquire land in pursuance of such purposes.

The House then renewed consideration of points left open at the end of the report stage concerning Clause 13. This clause, inserted to meet representations by Lord Dawson of Penn, ran:

13. The council of every county and county borough shall, before making provision for hospital accommodation in discharge of the functions transferred to them under this part of this Act, consult with such committee or other body as they consider to represent both the governing bodies and the medical and surgical staffs of the voluntary hospitals providing services in or for the benefit of the county or county borough.

On the motion of Lord ONSLOW the House agreed to substitute "before making provision" for "when making provision," and to leave out the word "with" from the phrase "consult with such committee." Lord Onslow further moved to add at the end of the clause words providing that the consultation should be "as to the accommodation to be provided and as to the purposes for which it is to be used." He said these words were introduced to meet the wishes of Lord Dawson as far as possible, and he understood that Lord Dawson would accept it. The Government wished to meet in every way it could the Lords who represented hospitals.

Lord DAWSON OF PENN thanked Lord Onslow for trying to meet the view held by himself and his friends. The clause did not do all they asked, but certainly went further than the earlier offer of consultation on "accommodation" only. The clause would bring the people who knew into contact with those who had to administer. It did not go as far as it would be necessary to go in administrative matters. That the mass of the medical profession were debarred from having an effective voice in the health services had always been a serious matter. Unless some steps were taken to bring the mass of the profession and those who knew about these things into responsible contact with those who, for the first time, were to take such a large part in administering the bill, the bill was little likely to have the good effects that were hoped for it. He recognized, however, that this clause gave the right of consultation, and he hoped that out of this poor beginning larger things would grow as the years went by.

The House agreed to Lord Onslow's amendment.

Drafting amendments were made in Clause 62 regarding the provision of hospital accommodation for infectious disease.

Other drafting amendments having been made the bill passed the House of Lords, and was returned to the House of Commons.

The Lords' Amendments considered by the Commons.

On March 22nd the House of Commons considered the Lords' amendments.

Mr. CHAMBERLAIN moved that the House should agree with the clause providing for consultation with representatives of the governing bodies and staffs of voluntary hospitals in its form as amended on the third reading in the House of Lords. He said that this was a matter of some importance, and had been considerably discussed in the House of Lords. The purpose of the discussion was to try to ensure that there should be full and ample opportunities for the representatives of voluntary hospitals in any area, including not merely the lay members but the medical and surgical staffs, to offer their experience and to put forward their views before the local authority set to work to revise its hospital accommodation. The Government did not desire to put into the bill more than was necessary, but it became clear in the House of Lords that people of very considerable weight and standing in the voluntary hospitals world were not satisfied that, without some statutory provision, there would be that measure of consultation with the representatives of the voluntary hospitals, which they felt to be not merely desirable, but vital for the proper development of the hospital services of the country in the future. With the object of the clause he had been always fully in sympathy. He had a very strong view that the assistance of the voluntary hospitals would be absolutely essential if the municipal hospitals, which would be reorganized and conducted by local authorities in future, were to be placed on a proper footing. They stood on a very different level from the voluntary hospitals, and it would be a work of time, care, and tact to bring them up, generally speaking, to the same level as that attained by the voluntary hospitals. That could only be done by the exercise of co-operation and good will on both sides. He believed that the provision made in the clause, under which there was the duty laid on the local authorities to consult with bodies representative of the voluntary hospitals, would bring about that co-operation and good will. It would be seen that the body which was to be consulted was such committee or other body as the local authority considered to be representative both of the governing bodies and the medical and surgical staffs of the voluntary hospitals. It would be said, perhaps, that in one area or another there would be no such body. It was quite possible that there was no such body in some areas now, but it was most desirable that there should be such a body, because the voluntary hospitals would never be able to exercise to the full the influence which they should on the health of the district unless there was co-ordination among themselves, and unless there was some body which would represent the various voluntary hospitals concerned, and which could speak for the whole of them when dealing with the local authority. Without such a body there would not be the full measure of consultation which was desirable. He regarded the clause, therefore, as likely to have the effect of stimulating the formation of such representative bodies, and from that point of view to be a valuable addition to the bill.

Mr. GREENWOOD said that to make the best use of the available hospital accommodation there must be consultation between the local authorities and the various voluntary hospitals, but he looked on the new clause with a little suspicion. The Minister of Health seemed to have in hand the organization of the new voluntary hospitals in the future with a view to preventing the development of the public hospitals. He saw no reason why the consultation proposed should not have been confined to the governing committees of the hospitals. Why should the local authorities have to consult the employees of the voluntary hospitals? The words of the new clause had been put in by the most powerful trade union in the country. They were initiated and supported by very influential members of the medical trade union.

Dr. FREMANTLE: What does the hon. gentleman mean by that? Does he mean the British Medical Association?

Mr. GREENWOOD: I mean the organized medical profession of this country.

Dr. FREMANTLE: Which organization does he mean?

Mr. GREENWOOD: There are more than one, I understand. I see no reason why the hon. gentleman should be ashamed of his trade union.

Dr. FREMANTLE: I am not ashamed of it, but I want the hon. gentleman to be precise in what he says.

Mr. GREENWOOD: To please the hon. gentleman I will say at once the British Medical Association.

Dr. FREMANTLE: May I ask if Lord Dawson has anything to do with the British Medical Association?

Mr. GREENWOOD: I should think it very unlikely; but no doubt he is a loyal paying member of his trade union, and is in a position to present its case in the House of Lords. Continuing, Mr. Greenwood asked why it should be made compulsory on the local authorities to consult with the servants of the voluntary hospitals. He was sorry that the Minister had lent himself to this new development of sovietism in a very conservative profession. It looked as if there might be behind this proposal the opposition to any development which did not harmonize with their own particular interests.

Sir R. LUCE said that he welcomed the new clause, because some sort of co-ordination was essential in future between the voluntary system and the development of local authorities' hospitals if a great deal of overlapping was to be prevented. A vast amount of experience had been gained by the voluntary hospitals, not only in matters of administration, but in matters of co-ordination. There was need of the separation of different kinds of treatment, and a vast amount of work was necessary in reorganizing and co-ordinating to see that the right kind of work was done in the different hospitals throughout the country. That was a matter on which medical advice was necessary. Therefore it was a little unfair to say that the medical profession should not be consulted in this matter. He welcomed the clause very heartily on behalf of those interested in the development of the hospital system, and in the ensurement that, in any future extension of it, the wonderful old system of voluntary hospitals should not be elbowed out by processes of nature, but should remain the centre round which the new development of hospitals should proceed. They owed to Lord Dawson, who so eloquently and persistently urged the adoption of a clause of this kind, another debt of gratitude in addition to that which the nation owed to him to-day, and would never be able to repay him. (Cheers.)

Mr. PETHICK-LAWRENCE said that the Minister had given no indication of what the local authority would do in cases where no such committee as was contemplated by the clause existed. There was no obligation on the part of the voluntary hospitals to form such a committee.

Sir A. HOPKINSON said that he had had to deal with just such questions as were raised by the clause, which was an admirable one, and co-ordination was absolutely vital in hospital work and development. It was necessary that the medical staff should be consulted, for they were the people who really knew the points in question. In the co-ordination of hospital work in Manchester, of the governing body of which he was a member, the loyal co-operation of the medical men who had given their lives to this work had been of the utmost value. How could they possibly know what steps ought to be taken, not only in the matter of healing, but of research, unless they consulted the people who had been at work for years in connexion with the various hospitals? There was also the question of the training of medical men and nurses. On that point, after many years' experience, he had come to the conclusion that the co-operation of the laymen on the governing bodies, of the local authority, and of the trained medical men was vitally essential.

Sir H. NIELD said that, as one who had been interested in voluntary hospitals for many years, he thought that the attitude of the Opposition, who pretended to be the friends of the poor, was a very ungenerous one. He hoped that they would not hear any more of the ungenerous attacks on the medical profession, who had devoted their lives to the welfare of the public.

Sir H. SLESSER denied that anyone on the Opposition side had attacked the doctors. They all agreed in paying to the doctors the greatest possible tribute, and the question of their merits or demerits was nothing to do with the matter under discussion. The direction in the clause that the local authorities should consult with certain bodies was only a pious aspiration, for even if these bodies existed and consultations took place, nothing was provided as to the consultations being acted upon. The clause could not be interpreted in a court of law, and was meaningless.

Sir KINGSLEY WOOD said that in the House of Lords many most distinguished lawyers and judges who sat on the highest tribunal in the land had devoted considerable time to the discussion and framing of the clause, and he accepted their view that the clause was likely to have a real and practical effect. Its object was to avoid overlapping in the provision of hospital treatment, and he was certain that when the local authorities entered into consultation with the representatives of the voluntary hospitals those consultations would be of the friendliest nature. They would not be empty consultations, but really in the best interests of the poor and the sick of the country. A very large number of associations representative of the voluntary hospitals already existed, and where no such associations or committees existed at present the Minister of Health was assured that the voluntary hospitals would see that they were formed. It was obviously to their interests to do that. The local authorities and the bodies representing the voluntary hospitals could be trusted generally to consult in this matter in a friendly way, and to come to a conclusion which would be to the best interests of all concerned.

The new clause was agreed to.

A further amendment by the Lords, legalizing the practice of associations of wage earners and persons in receipt of small incomes to contribute weekly sums to the support of Poor Law hospitals as well as voluntary hospitals was agreed to. Mr. CHAMBERLAIN, in moving that the amendment should be accepted, said that in one case last year nearly £10,000 was paid to the guardians for services rendered by a Poor Law hospital.

Further amendments of a drafting character were made, and the bill was returned to the House of Lords.

London Lock Hospital.

Mr. CHAMBERLAIN gave a statement to Mr. Pethick-Lawrence and Mr. Arthur Greenwood regarding the London Lock Hospital. He said he had brought to the notice of the board of the hospital the recommendations of the committee appointed to inquire into the hospital. He had received an assurance, which he accepted, that the board had already applied itself to carrying the greater part of the recommendations into practical effect. This task must involve a comprehensive review of the constitution and management of the hospital and considerable time would be required to complete it. Mr. Chamberlain did not think it in the public interest to publish details of arrangements at the hospital which were already under revision by the governing body, if and so long as he remained satisfied at the extent of the changes made and the rate of progress in making them.

Mr. PETHICK-LAWRENCE asked Mr. Chamberlain to take into account that the inquiry was undertaken owing to serious allegations made against the board. He argued that the subscribing public was entitled to know whether the board was exonerated by the report, and, if not, whether the charges made were being met by the proposed alterations.

Mr. CHAMBERLAIN replied that the report of the committee showed that considerable changes in the management of the hospital were desirable. He had an assurance from the chairman of the board that it was addressing itself to making the necessary alterations.

Mr. PETHICK-LAWRENCE further asked whether, as the matter had been going on for some nine years, the subscribing public could not be expected to have any further confidence in the management unless there was real evidence of drastic changes.

Mr. CHAMBERLAIN agreed that the subscribing public would want to be assured that there were to be drastic changes. He had an assurance such changes were being made.

In reply to Mr. Pethick-Lawrence, on March 21st, Mr. CHAMBERLAIN said that he had no evidence of dissatisfaction with the reply which he had given some days previously about the report of the committee which inquired into the London Lock Hospital. He made himself responsible for ensuring that changes at the hospital were carried out with sufficient speed; but it was not practicable to impose a time limit. He could not undertake to publish the correspondence between himself and the board of the hospital.

The Puerperal Fever Death Rate.—In the House of Commons, on March 20th, during a debate on the motion for the second reading of the Consolidated Fund (No. 2) Bill, Mr. J. STEWART said that puerperal fever was still taking as large a toll of life as it did forty years ago. Apparently science, which had reduced the death rate in other directions, had failed in regard to this disease. He would like to know what action the Government was taking in the matter. It might be necessary for the central authority which was finding the money to use some sort of forceful persuasion on the local authorities to induce them to develop their maternity hospital accommodation. It should be possible for every woman at the time of childbirth to have the chance of the best accommodation and treatment. Sir JOHN GILMOUR regretted that greater progress had not been made in dealing with the very serious problem of puerperal fever, but they had taken steps to ensure that in future on every death certificate these facts should be notified, and that in itself would be an advance in giving them information, which could be tabulated. He would also draw attention to a report by Dr. Kinloch, the new head of the Health Department in Scotland, who spoke with peculiar knowledge on this subject. They desired to draw the attention of the whole medical fraternity to his report, which would be made available. He hoped by the steps taken recently in the Scottish Local Government Bill that they would make further progress in regard to the increase of hospital accommodation.

National Insurance: Osteopathic Treatment as an Additional Benefit.—Mr. HANNON asked the Minister of Health, on March 14th, whether his attention had been called to a resolution adopted, at its recent annual general meeting, by the National Federation of Employees Approved Societies, which emphasized the benefit to be derived from osteopathic treatment, and recommended such treatment as an additional benefit; and if he was prepared to consider favourably this suggestion provided treatment was given by competent qualified practitioners. Mr. CHAMBERLAIN replied that his attention had not previously been drawn to this resolution. A registered medical practitioner was not debarred from giving osteopathic treatment, if he thought fit, either under a special scheme approved by the Minister for the purpose of additional benefit or otherwise. If, however, Mr. Hannon suggested legislation to encourage the provision of such treatment by unregistered persons, Mr. Chamberlain could not undertake to regard the suggestion with favour.

Small-pox.—In a reply to Mr. Groves, on March 14th, Mr. CHAMBERLAIN said no experiments had been made at the Government lymph establishment with neuro-vaccine, which Mr. Groves described as recently brought into use on the Continent to replace the lymph of Jenner. No use had been made of this new vaccine for public vaccination purposes in England. Mr. CHAMBERLAIN stated, on March 21st, that the small-pox cases notified in London in the past three weeks were: Bethnal Green 2, Finsbury 4, Holborn 1, Islington 1, Lambeth 4, Poplar 9, St. Pancras 2, Southwark 3, and Stepney 13. He understood that 15 of those notifications were in respect of persons of 21 years or over.

Chlorodyne as a Drug of Addiction.—Lady ASTOR asked the Home Secretary, on March 13th, whether he was aware that fresh evidence of the use of chlorodyne as a drug of addiction had come to light since the Departmental Committee on Morphine and Heroin reported in 1926. Sir W. JOYNSON-HICKS replied that the evidence before the Home Office did not show that the abuse of chlorodyne had been increasing since the Rolleston Committee reported. Lady ASTOR asked whether the Home Secretary proposed at an early date to carry out Recommendation 103 (2) of this committee, which would secure that no preparation could be sold under the name of chlorodyne which contained more than 0.1 per cent. of morphine. Sir W. JOYNSON-HICKS said the recommendation of the Rolleston Committee had been under consideration, but legislation would be required to give effect to it. No opportunity for this had occurred, but the matter had not been lost sight of and was noted for consideration in connexion with the general question of the revision of the Pharmacy Act, which had been under investigation by a departmental committee.

Anthrax.—On March 14th Sir W. JOYNSON-HICKS said a warning of the dangers of anthrax, and the need for immediate recourse to medical examination, was required to be posted up by Home Office regulation in every tannery. Supplies of serum were available in every centre where the industries subject to this risk were carried on. The warning notice to which he referred enumerated the places where the serum could be obtained. Even in isolated factories a supply could always be available in a few hours. Any worker in the industry who was suffering from a boil or pimple or anything which might possibly be anthrax should obtain medical advice and treatment at once. In the case of a Liverpool tannery labourer, on whom an inquest was held on March 6th, neither the man himself, nor the welfare worker, nor the doctor suspected anthrax. He was not aware of an opinion among leather workers that cases of anthrax were due to inadequate inspection of raw hides. If he was given any information showing that serum was not available day and night he would have inquiry made.

Administration of Dangerous Drugs by Hospital Probationers.—On March 20th Sir R. THOMAS asked whether hospital probationers were entitled to administer powerful drugs, such as digitaline and morphine, in the absence of a qualified medical practitioner. Mr. CHAMBERLAIN replied that the administration of drugs within the scope of the Dangerous Drugs Act was subject to special restrictions, but the responsibility for administration rested with the medical practitioner in charge of the case. He could not undertake to decide in general terms who was to be held responsible in the event of the death of a patient as a result of a mistake on the part of a probationer. That must turn on the view taken of particular facts.

Certification of Insane Persons.—On March 13th Dr. VERNON DAVIES asked the Minister of Health if his attention had been drawn to the fact that, owing to a recent High Court case, medical men would not run the risk of certifying insane people. Dr. Davies asked, further, whether Mr. Chamberlain proposed to introduce legislation to deal with the situation, which was inimicable to the best interests of the afflicted persons and the public. Sir KINGSLEY WOOD said Mr. Chamberlain's attention had been drawn to this case. He hoped that any legislation which might be introduced to amend the lunacy laws would include a provision giving effect to the recommendation on this point of the Royal Commission on Lunacy and Mental Disorder.

Phthisis Attributable to Service in the Navy.—Introducing the Navy Estimates on March 14th, Mr. BRIDGEMAN said he had been concerned with the question of pulmonary tuberculosis in the navy and the awards of pensions to those suffering from it. After careful investigations, and with the sanction of the Treasury, the Board of Admiralty had adopted methods which made it easier for men to claim pensions for disease attributable to service. There were still, and would always be, cases on the borderline, but by the method adopted the number of cases recorded as attributable to service would increase.

Lead Paint Regulations.—On March 21st Sir W. JOYNSON-HICKS told Mr. Viant that, as a result of co-operation between the inspectors of his department and the Home Office, substantial progress had been made in compliance with the Lead Paint Act, 1926, and the regulations. As the regulations had been in force for less than eighteen months, it was not possible to form any reliable estimate of their efficiency. The Act was passed on the understanding that before prohibition was resorted to the effect of regulations should be tried, and he was not prepared to reopen this question at present.

Segregation of Mental Defectives.—On March 21st Mr. CHAMBERLAIN, answering Sir R. Thomas, said that the Mental Deficiency Acts of 1913 and 1927 already provided means by which mental defectives, including moral defectives within the meaning of the Acts, could be segregated or placed under guardianship or supervision. He saw no necessity for the appointment of a committee to advise on such segregation.

Notes in Brief.

The Minister of Health is considering the situation by the decision of Mr. Justice McCardie in Brown *v.* Dagenham Urban District Council, which allowed the dismissal of public officials at any time at the pleasure of the body employing them, irrespective of any contract about notice of termination of employment.

The amount of capital expenditure by local authorities on slum clearance schemes in the last five years is estimated roughly at £5,250,000.

Mr. Chamberlain estimates that in England and Wales during 1927 sickness benefit was paid under the National Health Insurance Acts for roughly 30,500,000 weeks, as against 28,250,000 in 1926, and 25,000,000 in 1925. Exact particulars are not available.

Mr. Chamberlain is inquiring into an allegation that a woman patient of Newark, Notts, was certified on account of delirium and sent to Radcliffe Asylum, where she was diagnosed as suffering from scarlet fever.

Universities and Colleges.

UNIVERSITY OF OXFORD.

DR. ORMOND ALEC BEADLE has been elected to a Dr. John Radcliffe Fellowship.

The Radcliffe Prize for the furtherance of medical science in the University has been awarded to Dr. Sidney Campbell Dyde.

UNIVERSITY OF LONDON.

THE degree of D.Sc. in Anatomy has been conferred upon Mr. W. B. Crow, of East London College, for a thesis entitled "Contributions to the principles of morphology."

An academic Diploma in Public Health is to be instituted.

Dr. M. E. Delafield has been appointed the representative of the University at the fourth Imperial Social Hygiene Congress, to be held in London in July.

Sir John Rose Bradford, C.B., has been re-elected vice-chairman of the University College Committee for 1929-30.

Dr. Harold Raistrick has been appointed, as from August 1st, to the University Chair of Biochemistry at the London School of Hygiene and Tropical Medicine, where he will also hold the position of Director of the Division of Biochemistry and Chemistry, as applied to hygiene.

UNIVERSITY OF LEEDS.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—*Part I*: Bessie Brown, W. H. Craven, H. Denton, C. H. Foster, J. F. Galpine, W. L. Hardman, J. N. Hill, G. M. Holliday, L. Hoyle, Eugenie C. Illingworth, I. J. Keidan, R. G. S. Meadley, C. Poniedel, L. J. Richmond, S. Rosenberg, S. Silman, L. Silverman, W. E. Smart, E. J. Wayne, J. W. Whitworth. *Part II*: J. Kak, J. Loofe, G. J. Marks. *Part III*: L. B. Flather, Esther M. Killick (with distinction in medicine), A. C. Shuttleworth, Ivy R. Watson.

M.SC. IN PHYSIOLOGY.—R. E. Tunbridge.

UNIVERSITY OF LIVERPOOL.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—*Part I*: V. T. Parkinson. *Part II*: Teresa Lightbound, V. T. Parkinson.

D.P.H.—*Part I*: A. B. Anderson, J. L. Glegg, Kathleen Edgecombe, R. R. Evans, Bridget M. O. Gordon, B. S. Jarvis, I. S. Jones, J. S. Logan, J. Macdonald, J. C. McFarland, R. L. McMorris, E. Miles, R. J. Ormsby, D. E. P. Pritchard, F. L. Smith, F. C. Speechly.

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—*Parts I and II*: W. H. Milligan, J. E. C. Walker, P. H. Whitaker, J. Wilson.

DIPLOMA IN TROPICAL MEDICINE.—K. B. Chakravarti, J. Crawford, W. C. Dale, J. R. Dogra, G. D. Drury, T. S. Gill, Margaret A. L. Herbertson, J. A. L. Innes, J. A. McGregor, W. B. McQueen, B. K. Majumdar, I. C. Middleton, J. T. F. Pearse, C. Ramdeholl, Elizabeth J. Robinson, P. B. Robinson, A. Shafi, T. Verghese, S. P. Wilson.

DIPLOMA IN TROPICAL HYGIENE.—S. W. H. Askari, A. Halawani, I. S. Hilmy, H. S. Lawrence, H. M. Setna.

UNIVERSITY OF DUBLIN.

TRINITY COLLEGE.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., PART I.—*Materia Medica and Therapeutics; Medical Jurisprudence and Hygiene; Pathology, and Bacteriology.*—*S. H. Moore, *S. Levy, W. Caldwell, F. M. Lyons. (*In completion*): C. H. Hutchinson, A. A. Lisney.

PART II.—*Medicine:* A. F. Kennedy, L. B. Harris, F. R. Falkiner, T. B. McMahon, J. Beggs, P. A. Thornton, E. C. Hicks, N. Shapira, *E. B. A. Solomons, G. B. Thrift, R. M. Wilson, M. E. Kirwan, N. S. Klass, M. H. Fridjhon, J. A. Dowds, C. King, N. H. Lindsay. *Surgery:* J. E. C. Cherry, N. Burstein, P. A. Thornton, Anna M. E. McCabe, H. Dundon, W. B. Hamilton, W. A. Y. Knight, Josephine M. Enright. *Midwifery:* *J. N. U. Russell, *E. F. St.J. Lyburn, *H. T. Fleming, P. O'Shea, R. E. Hemphill, Lilla M. Spiller, E. F. S. Morrison, G. R. Boare. A. Rose, Kathleen A. Wilson, S. Beggs, Dora G. Bradley, R. T. O'Shea, R. P. McGarrigle, Frances E. Wilson, N. Shapira, J. Willoughby, E. J. M. Bam.

DIPLOMA IN GYNAECOLOGY AND OBSTETRICS.—I. S. Marwah.

* Passed on high marks.

The Services.

NAVAL MEDICAL COMPASSIONATE FUND.

A MEETING of the subscribers of this fund will be held at the Medical Department of the Navy, Queen Anne's Chambers, Tothill Street, Westminster, S.W.1, on April 25th, at 11.30 a.m., to elect six directors of the fund.

INDIAN MEDICAL SERVICE.

THE following have been appointed to permanent commissions in the Indian Medical Service: K. F. Alford, H. J. Curran, A. M. Fraser, B. J. Griffiths, W. P. Lappin, E. A. Y. Mackeown, H. T. McWilliams, G. Milne, G. J. O'Connor, P. Shannon, D. L. Trant, H. S. Waters, E. P. Walsh, W. J. Walsh. Further appointments are about to be made, and young medical men contemplating a medical career in India are referred to the announcement made in our advertisement columns.

DEATHS IN THE SERVICES.

Surgeon Captain Edward Leicester Atkinson, D.S.O., R.N., died suddenly at sea on February 20th, aged 46. He was born on November 23rd, 1882, the son of Edward Atkinson, Esq., was educated at the Forest School and at St. Thomas's, and took the M.R.C.S. and L.R.C.P.Lond. in 1906. In 1905 he won the light-weight boxing championship of the United Hospitals. Entering the navy soon after qualifying, in 1908-9, he served as vaccinator at the Royal Naval Hospital at Haslar, and in 1910 was appointed pathologist and bacteriologist to Captain Scott's expedition to the antarctic regions. When Scott set off for the South Pole he was left in charge of the ship, and commanded the main party at Cape Evans, and the party which went in search of the missing explorers, and found their bodies, buried them, and erected a great cairn over their remains. To the official account of the expedition, drawn up by Dr. Leonard Huxley, and published in 1913, he contributed a chapter entitled "The last year at Cape Evans," which concludes with the story of the finding of Scott's tents and the bodies of Scott and his companions, all except Captain Oates, whose remains were never found. In the great war Surgeon Captain Atkinson served successively with the Grand Fleet, with the Royal Naval Division in Gallipoli, and with a howitzer brigade in France, when he was thrice mentioned in dispatches, and received the D.S.O., and in North Russia in 1919. He was awarded the Albert Medal for rescue work in the explosion on H.M.S. *Glatton* in 1918, when he himself lost one of his eyes; and in 1920 he gained the Chadwick gold medal and prize, an award made every five years to the medical officer who has done the best special work for the health of the army and navy. So recently as last November he married Miss Mary Flint Hunter, daughter of John Hunter, Esq., of Glasgow.

Medical News.

AT a joint meeting of the Section of Psychiatry of the Royal Society of Medicine with the Medical Section of the British Psychological Society, to be held at 1, Wimpole Street, W.1, on Tuesday, April 9th, at 8 p.m., there will be a discussion on the role of anxiety in the psychoses and psychoneuroses. The speakers include Dr. Ernest Jones, Dr. H. Yellowlees, and Dr. R. D. Gillespie.

A SERIES of dances is being arranged by different London hospitals in turn in aid of the Royal Medical Benevolent Fund Guild, in the hall of the British Medical Association House, Tavistock Square, W.C.1. The first of these will be organized by Guy's Hospital, and will be held on Thursday, May 16th, from 8.30 p.m. to 12.30 a.m. Tickets, 6s. each, or 11s. for two, which include light refreshments, may be obtained from Mrs. Hale-White, 1, Portland Mansions, W.1; Miss V. S. Fripp, 19, Portland Place, W.1; or Mr. Winston, Medical School Office, Guy's Hospital, S.E.

A PUBLIC meeting to discuss developments of British chemical manufacturers will be held in the Mansion House, London, on Wednesday, April 24th, at 4.30 p.m., when Lord Melchett (president of the British Science Guild) will take the chair. The programme will include the following addresses: fertilizers from the air, by Sir Frederick Keeble; rayon (artificial silk), by Mr. A. B. Shearer; and synthetic drugs, by Mr. Francis H. Carr. Tickets for the meeting may be obtained on application to the British Science Guild, 6, John Street, Adelphi, W.C.2.

THE Library of the British Medical Association will be closed from the evening of Thursday, March 28th, until the morning of Tuesday, April 2nd.

ON March 25th the Westminster Bank transferred its Russell Square branch, at which the Association keeps its various accounts, to the North Wing of the Extension of the British Medical Association House in Tavistock Square.

A COURSE of post-graduate lectures will be delivered at the Royal Dental Hospital of London School of Dental Surgery, Leicester Square, W.C., commencing on Wednesday, April 10th, when Mr. Bowdler Henry will give a lecture-demonstration on the use and limitations of diathermy in dental surgery. On April 24th Professor J. C. Drummond will speak on certain biochemical aspects of saliva; on May 1st Dr. E. W. Fish will deal with the reaction of the pulp and dentine to caries; on May 8th Mr. J. G. Turner, F.R.C.S., will lecture on pain. The last lecture of the series will be given by Mr. F. St. J. Steadman, who will discuss fractures with special reference to treatment. The lectures, which begin at 6 p.m., are free to practitioners, advanced students, and others interested in the subjects.

THE Fellowship of Medicine announces that a two weeks' practitioners' course will begin on April 8th at the London Temperance Hospital in medicine, surgery, and the specialties from 4 to 5.30 p.m. daily. A series of eight lecture-demonstrations will be given at the London School of Tropical Medicine on Tuesdays and Fridays from April 9th, and a course of four lecture-demonstrations on light and heat therapy on Wednesdays at the Royal Free Hospital from April 10th. A three weeks' course in medicine, surgery, and gynaecology at the Royal Waterloo Hospital commences on April 15th. A course in neurology at the West End Hospital for Nervous Diseases will continue from April 15th to May 11th at 5 p.m.; it consists of lecture-demonstrations, illustrated by cases, and the minimum entry is 10. The Fellowship proposes to start a course for the July M.R.C.P. examination. Lectures will be given on diseases of the brain, nervous system, lungs, heart, blood, kidneys, alimentary system, and spleen, as well as on modern biochemical methods. Detailed syllabuses of these courses, information on post-graduate work in London at the general and special hospitals affiliated to the Fellowship, and copies of the *Post-Graduate Medical Journal* can be obtained from the secretary of the Fellowship, 1, Wimpole Street, W.1.

THE Derby Medical Society has arranged a course of post-graduate lectures to be given by Dr. H. C. Cameron at the Derbyshire Royal Infirmary on Tuesday evenings at 8 p.m. The first lecture, on April 9th, will deal with the newly born, the second, on April 16th, with the infant and its diet, the third, on April 23rd, with acidosis, the fourth, on April 30th, with some surgical operations in childhood, and the fifth, on May 7th, with functional nervous disturbances. The fee for the course is £1 10s. Full particulars may be had from Dr. G. E. Kidman, 134, Osmaston Road, Derby.

AS will be seen from our advertisement pages the next election to the Grocers Company scholarships for encouraging original research in sanitary science will take place in May next; they are of the value of £300, tenable for one year, but renewable. Forms of application can be obtained from the clerk of the Grocers Company, Grocers' Hall, E.C.2, to whom they must be returned before the end of April.

QUEEN CHARLOTTE'S Maternity Hospital has now decided to purchase a site of five acres on the Goldhawk Road, near Ravenscourt Park Station, in the borough of Hammersmith. Building operations will commence at an early date on the first section—a separate isolation block (with research facilities) for patients suffering from puerperal fever. This will be the first instance in this country where reception will be provided on a large scale for cases of puerperal infection, and where laboratory research and the training of post-graduate students and midwives can be based upon the study of such cases.

LISTS of medical practitioners serving as members of local authorities or their subsidiary public bodies in Great Britain were published in our issues of December 8th (p. 1057) and December 29th, 1928 (p. 1190), and February 16th, 1929 (p. 314). We have since received intimation that Dr. S. Edwards Jones (Wrexham) is chairman of the Public Health and Small-pox Hospital Committees, a member of the Maternity and Child Welfare Committee and of the Mental Deficiency Committee, and a representative of the Voluntary Hospitals Committee of the Denbighshire County Council. In the Borough of Wrexham Council he is deputy mayor and alderman, and chairman of the Health and Child Welfare Committee, and was mayor in 1910-11. He is a member of the Wrexham Rural District Council and chairman of the Joint Fever Hospital Committee; also a member of the Wrexham Board of Guardians, of which he was for seven years chairman. We have also been informed that Dr. Alex. A. Carruthers is a member of the Parish Council of Shilton, Warwickshire.

THE late Sir Hector Clare Cameron of Glasgow left personal estate of the value of £34,723. He bequeathed the portrait of himself by George Henry, R.A., to the Royal Faculty of Physicians and Surgeons of Glasgow, and £100 to the Western Infirmary, Glasgow.

SIR ROBERT ARMSTRONG-JONES of Plas Dinas has been elected sheriff for Carnarvonshire for 1929.

THE following appointments have recently been made in foreign faculties of medicine: Professor Dubois, dean of the faculty of medicine, and Dr. Ingelrans, professor of therapeutics, at Lille; Dr. A. Barraud, professor of the oto-rhino-laryngological clinic at Lausanne; Dr. Wilhelm Brock, professor of oto-rhino-laryngology, and Dr. Otto Goetz of Frankfort, professor of surgery, at Erlangen; Professor von Eicken, director of the oto-rhino-laryngological clinic, dean of the medical faculty, and Dr. Röszle of Basle, professor of general pathology and pathological anatomy, at Berlin; Dr. Karl Reuter, professor of medical jurisprudence at Breslau; Dr. Terracol, professor of oto-rhino-laryngology, and Dr. Riche, professor of gynaecology, at Montpellier; Professor A. Fornesco, director of the obstetrical and gynaecological clinic at Cagliari; Dr. Otto Steurer of Tübingen, professor of oto-rhino-laryngology at Rostock; Dr. Eugen Ludwig, professor of anatomy at Basle; Dr. Grashey, professor of roentgenology at Cologne; Dr. Holfelder, professor of roentgenology at Frankfort; Dr. I. Nasso of Perugia, professor of clinical paediatrics at Messina, in succession to Professor Cannata, who has been transferred to Palermo; Dr. I. Simon of Pavia, professor of pharmacology and toxicology at Padua; Dr. Salva, professor of clinical ophthalmology, and Dr. Sigaud, professor of anatomy at Grenoble; Dr. de Leobardy, professor of medical pathology and experimental medicine at Limoges; Dr. Quinquand, professor of physiology at Rheims; Professor Dr. von Haberer, rector of the medical academy at Düsseldorf; Dr. Joseph Schuller of Cologne, professor of pharmacology at Göttingen; and Dr. Guido Fanconi, professor of children's diseases at Zürich.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
EDITOR of the *British Medical Journal, Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

PIGMENTATION OF THE FACE.

"HOPEFUL" asks for advice in the treatment of a female patient, aged 38, who for many years has been distressed by a dark brown staining of the skin below the eyes.

ANOREXIA NERVOSA.

"LOWLANDER" would like suggestions for the treatment of a woman, aged 21, suffering from anorexia nervosa of one year's standing. The patient weighs only 5 st., has no appetite, and is constipated. Drugs have no effect on her condition, though ultra-violet rays have brightened her mentally. She has been twice in hospital.

EMISSION WITHOUT ORGASM.

"PRAC." writes in answer to "M.B., B.S." (March 2nd, p. 429): I do not know of such a case as this in normal people, but have known of involuntary emission without orgasm in a case of adolescent dementia.

THE TRIANGULAR BANDAGE.

DR. N. CORBET FLETCHER (London, N.W.) writes: In reply to the query of "Inquirer" (New Zealand) (March 23rd, p. 583), the triangular bandage was invented about 1830 by Dr. Mayor of

Lausanne (Switzerland). It was popularized by Dr. Esmarch of Kiel, who introduced its use to the German army about 1875, and it was brought in 1877 from Germany to England by the St. John Ambulance Association. Dr. Mayor published in 1831 a book called *Fragments of Popular Surgery*, in which he praised the utility of handkerchiefs which, as he said, "can be cut diagonally into triangular bandages," or, as he called them elsewhere, "three-cornered bandages." In an appendix he described various ways in which the triangular bandage may be (and still is) used. The book was translated from the French by Dr. Thomas Cutler, and published in this country in 1836.

ENURESIS.

DR. T. W. HILL (London, N.W.) writes: In reply to "K.'s" query (March 9th, p. 485), and the replies it has evoked, allow me to give my large experience of similar cases at the Willesden clinic. In the great majority of cases each of the usual practices for the relief of this distressing complaint proves futile, whether it be circumcision, removal of adenoids, sleeping on hard boards, belladonna, etc. The only sure method is by proper suggestion on the part of the mother, reinforced by auto-suggestion by the child. It is my custom when any case comes to my notice to inquire into the mother's efforts to stop the habit. If there has been punishment or disapproval of any kind, this is promptly stopped. There must be absolute co-operation between parent and child, otherwise success is impossible. How can anyone speak of a sense of shame concerning an action which occurs in sleep, and which is similar to sleepwalking and sleep-talking? A complete psychological investigation is necessary into any source of worry or anxiety (frequently scholastic), and a regime of hope and encouragement introduced. It has been my practice to give the child a chart marked with the days of the week, which should be hung above his (her) bed. For each dry night a star is placed in the corresponding space. This scheme is derived from the American psychologists and proves extremely successful in practice. In about 90 per cent. of cases bedwetting ceases within two months, the time varying according to the duration and severity of the habit.

ILLNESS FOLLOWING A SHAMPOO.

DR. W. U. D. LONGFORD (Holywood, co. Down) writes: On March 4th a patient of mine went to a hairdresser's for a dry shampoo. She was warned by the attendant to hold a towel over her nose "as some people faint." Almost immediately the shampoo was applied the patient collapsed, and, I believe, the attendant was also partially overcome. My patient was carried out of the small compartment to another room with an open window, where the staff tried to revive her. After an hour's massage she had not recovered, so they sent for her mother, who took her home in a taxicab. The patient told me that she never lost consciousness completely, but that she was unable to move a limb or speak. When I saw her she appeared dazed, as if recovering from an anaesthetic, and there was a strong smell of the chemical which had been used as a shampoo. Three days later she was still weak and unable to stand; she complained of severe headache, and her systolic blood pressure was only 95. Not until March 9th was she able to leave her bed, and even now she has not completely recovered, though her blood pressure is 120. I have been unable to discover the nature of the chemical used in the shampoo or any reference to similar cases in available medical literature, but I have a vague recollection of reading of a fatal case of the same kind some years ago.

*** It is possible that the chemical used in the shampoo which caused such serious effects on our correspondent's patient was carbon tetrachloride, which was formerly employed with some freedom in shampoos and brought about the fatal case of which our correspondent has a faint recollection. It is possible that the hairdressing fraternity has also nearly forgotten this case, and has consequently revived the use of this very poisonous compound, which is closely allied to chloroform, but more toxic.

INCOME TAX.

Replacement of Car.

"N. S. P." bought a 12-h.p. car six years ago for £600 and has now sold it for £45, and bought another car at a price of £316. What should he claim?

*** The amount of the actual out-of-pocket cost—that is, £316 − £45 = £271.

"J. D. McC." has claimed obsolescence in respect of a 12-h.p. A car bought in 1924 and replaced by a car of similar make and power bought on January 1st, 1928. The inspector of taxes declines to give effect to an obsolescence allowance because the replacement of the old 12-h.p. A car by another 12-h.p. A car is not within the statutory rule.

*** We consider that the claim is well founded. Having regard to the purpose for which a car is required by a medical practitioner and the wear and tear it suffers, there is nothing abnormal in the contention that a car is "obsolete" for the use to which it is being put in three years. The inspector appears to be putting an interpretation on the word "obsolete" which it is not intended to bear. The judge's dicta in the case of South Metropolitan Gas Company *v.* Dadd support our view, though his decision—on the special facts of that case—was in favour of the Revenue.

LETTERS, NOTES, ETC.

TREATMENT OF INFLUENZA.

DR. TRESSIE PIRES (Burnham-on-Sea) writes: I was much interested by Dr. W. Bastian's account on March 9th (p. 486) of the aspirin, phenacetin, and ipecac. treatment of influenza. After reading Dr. Garry Simpson's note on March 2nd (p. 430) with regard to this powder, I tried the same on a patient, who described its effect as very beneficial after the sweating; the headache and pains in limbs disappeared, and a second dose gave complete relief. Surely, at least, the excess of toxins causing the acute symptoms is here eliminated by the skin—shown by the fall in temperature and the feeling of well-being that the patient experiences—in spite of the fact that the bronchial and nasal secretion, even of a muco-purulent nature, which may continue, gets rid of the rest of the toxic process and debris of cells. I should like to know what dose is effectual in children.

SUDDEN DEATH FROM PNEUMONIA WITHOUT APPARENT SYMPTOMS.

DR. G. DUDLEY (Stourbridge) records another fatal case of symptomless pneumonia in an infant, following that reported by Drs. J. A. Stephen and E. R. C. Walker on January 26th (p. 152). He writes: A male infant, weighing 4 lb., was born two months prematurely on May 29th, 1928; with careful feeding on breast milk and good general nursing the child gradually gained weight and thrived. At the age of 6 months the weight was about 8 lb. and the child appeared to be doing well. About this time the mother had to go into hospital for an operation, and the child was looked after by an aunt. On December 5th, 1928, the infant was seen by a health visitor, who expressed herself as satisfied with his progress. The next day the father went to work at 7 a.m. and left the child asleep and apparently well, but two hours later I was called to the house and found the child dead. There was no evidence from external examination as to the cause of death and there was no history of any recent illness. There was a slight petechial rash round the buttocks which was said to have been of recent origin. At the necropsy the right lung was found to contain large patches of broncho-pneumonia, and there were a few recent pleural adhesions; the spleen was enlarged and the pulp was soft. The other organs appeared healthy. Death appears to have been due to extreme toxaemia, but the interest lies in the suddenness of the event.

PHYSIO-THERAPY IN CHRONIC RHEUMATISM.

DR. J. CAMERON (Beverley) writes: Dr. Frank D. Howitt, in his informative paper on physio-therapy in the treatment of chronic rheumatism (February 23rd, p. 338), refers to Dr. Percy Wilde's book on the pyretic treatment of rheumatism in connexion with the elimination of lactic acid. Dr. Howitt says a condition of hyperthermia quickly follows the immersion of the body in a hot bath, etc., and, further, that "vapour baths" give the best results in rheumatic cases. I have carefully read Dr. Wilde's work, and the essence of his thesis seems to be that in his particular vapour bath the air is simply "saturated" at the temperature concerned; that there is no free "condensed" vapour in the atmosphere of his bath; and that therein lies its efficiency, contrasted with the ordinary vapour bath, the atmosphere of which, while "saturated" for the temperature concerned, is also clouded with "condensed" vapour—in fact, one would say the condition alleged in the Wilde bath is that of the atmosphere in the Red Sea when the temperature is well above 90° F. and the air, of course, "saturated." I wonder if Dr. Howitt has made any comparison of the two conditions—that is, if there *is* a difference—and if he is able to say if there is any real difference in clinical results. If not, then a simple "cure" would be the Red Sea voyage, which I have done several times, or a run to Basra up the Persian Gulf, or anywhere to a hot "saturated" climate.

A CENTIPEDE IN THE NOSE.

MR. A. P. BERTWISTLE (London, W.) writes: There are some points in which I beg to disagree with Dr. Gordon Wilson in his article in the *British Medical Journal* of March 9th (p. 446). The common centipede (*lithobius*) is a much stouter, keratinous insect, possessing sixteen pairs of legs, whilst the millipede, which this closely resembles, has many more legs. I admit, however, that there is a centipede found in the South of England not unlike the one illustrated (*geophilus*). The life-history of both insects is about a year; I do not see how it could have hatched in the nose. Furthermore, these insects do not leave the soil to visit flowers. I suggest the patient got the adult creature into his nose, a favourite habitat, while breaking stones. Dr. Wilson mentions some interesting features of blow-fly infections. I have heard, and seen, one case which suggests that if, before the advent of suppuration, the wound is so infected, it will not become septic. If this is so, would it not be possible to prepare the ideal antiseptic from the maggot? It is quite feasible that maggots take precautions that their food supply shall be preserved against putrefaction.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 42, 43, 44, 45, and 48 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 76.

(*Aesculapius*)

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Printed and published by the British Medical Association, at their Office, Tavistock Square, in the Parish of St. Pancras, in the County of London.